United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with Virginia Polytechnic Institute and State University and United States Department of Agriculture, Forest Service

Soil Survey of Page County, Virginia

How to Use This Soil Survey

General Soil Map

The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

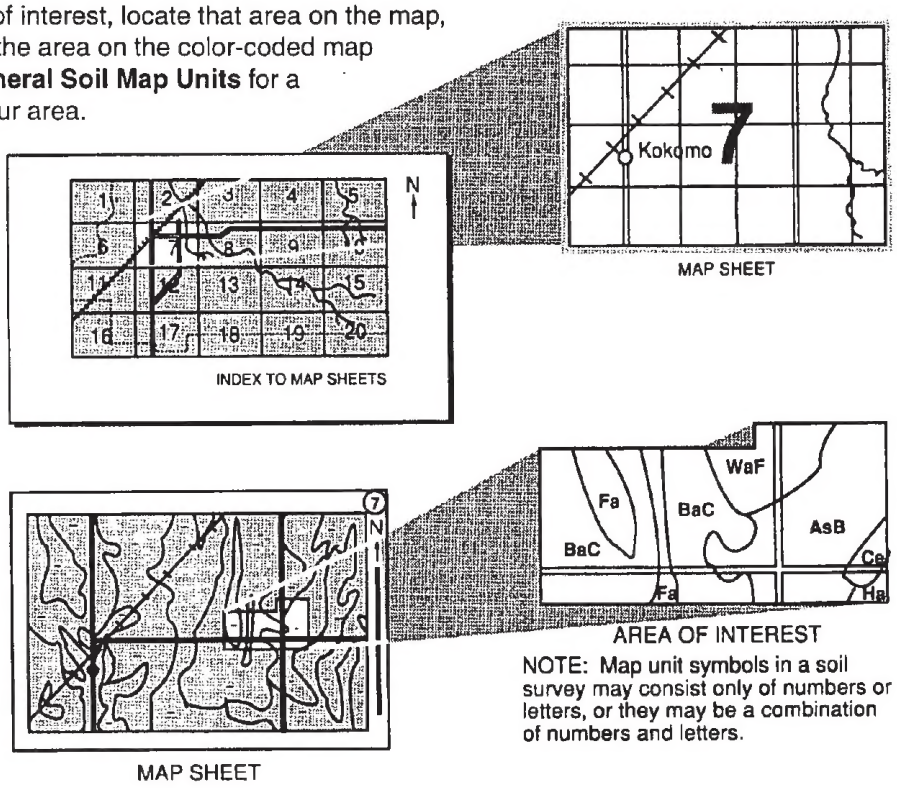
To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

Detailed Soil Maps

The detailed soil maps follow the general soil map. These maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets,** which precedes the soil maps. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents,** which lists the map units by symbol and name and shows the page where each map unit is described.



The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) leads the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1992. Soil names and descriptions were approved in 1994. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1992. This survey was made cooperatively by the United States Department of Agriculture, Natural Resources Conservation Service; the Virginia Polytechnic Institute and State University; and the United States Department of Agriculture, Forest Service. The survey is part of the technical assistance furnished to the Shenandoah Valley Soil and Water Conservation District. The Virginia Department of Conservation and Recreation; the Page County Board of Supervisors; the United States Department of Agriculture, Forest Service; and the United States Department of the Interior, National Park Service, provided financial assistance for the survey.

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Cover: Page Valley, Virginia. Thurmont soils are in the foreground. They formed in colluvium. Braddock, Combs, Huntington, and Sindion soils on flood plains and terraces are in the middleground. In the background, on the western flank of Page County, are the Massanutten Mountains. Dekalb, Zepp, Weikert, and Berks soils are on the steep side slopes. Jefferson and Laidig soils are on the foothills.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service home page on the World Wide Web. The address is http://www.nrcs.usda.gov (click on "Technical Resources").

Contents

Issued 2001

Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations that affect various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

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Soil Survey of Page County, Virginia

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Fieldwork by H. Geoffrey Coombs, Louis W. Heidel, Fred M. Garst, Willie Green, George Honchar, Bruce C. Dubee, John Davis, Jeannine C. Freyman, Maynard Sweely, and Paul S. Swecker, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
the Virginia Polytechnic Institute and University and the United States Department of Agriculture, Forest Service

PAGE COUNTY is located in the northwestern part of Virginia (fig. 1). It covers an area of about 316 square miles, or 200,400 acres. It is bordered on the east by Greene, Madison, and Rappahannock Counties; on the north by Warren County; on the west by Shenandoah County; and on the southwest and west by Rockingham County. It lies almost entirely within the Valley and Ridge physiographic province. Its eastern boundary runs along the crest of the Blue Ridge Mountains. Its western border is along the Massanutten Mountains. The rolling valley with mountains on both flanks is drained by the South Fork of the Shenandoah River. Shenandoah National Park extends along the Blue Ridge Mountains. Skyline Drive follows the crest of the Blue Ridge Mountains. George Washington National Forest extends along the Massanutten Mountains on the western border of the county.

In 1831, Page County was formed from parts of Rockingham and Shenandoah Counties. According to the U.S. Census Bureau, in 1990 the population of the county was 21,690 and that of Luray, the county seat, was 4,587.

About 58 percent of the county is forest. About 30 percent is cropland and pasture. The rest is in commercial, industrial, or residential use.

The best cropland is in the central part of the valley. But, livestock pastured on the rolling hills is the main source of farm income. Farm products such as hay, dairy goods, and poultry are also important. Poultry is also dressed and packed in the county. The main nonfarm industries are clothing, fibers, lumber, and printing.

The main highways in Page County are U.S. 340 running north-south and U.S. 211 running east-west. These highways intersect north of Luray. U.S. 211 intersects with U.S. 11 at New Market. It connects Luray to Washington, D.C., to the east.

Private wells and springs provide most of the water supply in Page County. The Shenandoah River provides most of the water supply for Luray.

General Nature of the County

This section provides important information on climate and physiography, relief, and drainage in Page County.

Climate

Prepared by the Natural Resources Conservation Service, Climatic Data Access Facility, Portland, Oregon.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Luray in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 32.7 degrees F and the average daily minimum temperature is 20.5 degrees. The lowest temperature on record, which occurred on January 22, 1984, is -10 degrees. In

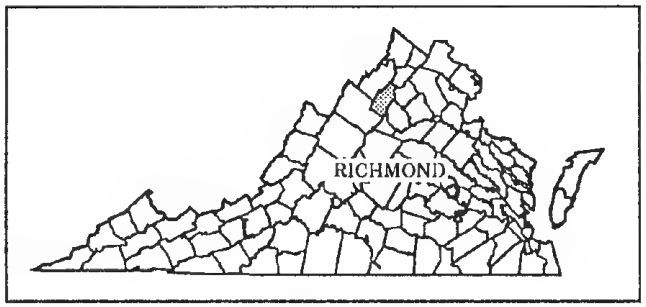

Figure 1.—Location of Page County in Virginia

summer, the average temperature is 70.9 degrees and the average daily maximum temperature is 84.2 degrees. The highest recorded temperature, which occurred on July 8, 1988, is 105 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is about 39 inches. Of this, 19.91 inches, or 46 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 11.96 inches. The heaviest 1-day rainfall during the period of record was 8.2 inches on August 18, 1955. Thunderstorms occur on about 44 days each year, and most occur in July.

The average seasonal snowfall is about 28.8 inches. The greatest snow depth at any one time during the period of record was 33 inches. On the average, 22 days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 87 percent. The sun shines 45 percent of the time possible in summer and 29 percent in winter. The prevailing wind is from the northwest. Average wind speed is highest, 8.2 miles per hour, in March.

Physiography, Relief, and Drainage

Page County lies within the Blue Ridge and the Valley and Ridge physiographic provinces. The greatest relief is along the eastern boundary. The highest point in the county is Hawksbill at 4,049 feet. Stony Man is 4,010 feet; Hazeltop, 3,816 feet; Nakedtop, 3,726 feet; Blackrock, 3,721 feet; The Pinnacle, 3,720 feet; and Marys Rock, 3,514 feet. The Massanutten Mountains are in the western part of the county. There, Big Mountain is 2,955 feet and Duncan Knob is 2,822 feet.

The lowest elevation in the county is about 590 feet. That is where the South Fork of the Shenandoah River leaves Page County and enters Warren County. In Luray the elevation is about 890 feet. (The benchmark location is 824 feet where the South Fork enters the southern part of Page County at the confluence of Naked Creek.) The county is drained by the South Fork of the Shenandoah River and its major tributaries. They are Naked Creek, Cub Run, Stony Run, Mill Creek, Hawksbill Creek, Jeremys Run, and Overall Run.

The topography is rugged in the extreme eastern and western parts of the county. It includes steep-walled valleys, fast-flowing streams, and heavily wooded slopes. The Shenandoah salient is in the southeastern part of the county. It is an extremely rugged area in the Blue Ridge Mountains. It extends 6 to 8 miles westward from the boundary of Page, Greene, and Madison Counties. It almost reaches the South Fork of the Shenandoah River at Ingham. Hershberger Hill, Varner Hill, Piney Hill, and Pine Mountain are at the edge of the Blue Ridge highlands. Massanutten Mountain is slightly more than 2 miles wide along the western boundary of the county. The low divide at New Market Gap has an elevation of 1,807 feet.

The central part of the county consists of a dissected upland or valley floor traversed by the South Fork of the Shenandoah River. The valley is at most about 7 miles wide, north of Stanley. Its narrowest part is about 1 mile at Overall. The valley floor, generally about 100 to 125 feet above the elevation of the river, is covered mostly with a veneer of gravel. The area enclosed by Leaksville, Hamburg, and Luray is moderately karst. At present, the flood plain of the South Fork is about 0.75 mile wide north of Alma. It narrows downstream to small scrolls inside of meander bends. In Page County the South Fork is mostly entrenched below the upland surface.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and

management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another, but in a different pattern. Table 4 summarizes the acreage and proportionate extent of the soils for the general soil map.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Soil Descriptions

1. Lodi-Carbo-Oaklet

Moderately deep and very deep, gently sloping to steep, well drained soils that have a clayey subsoil

Setting

Topography: Broad, moderately dissected uplands (fig. 2)
Location: Limestone valleys
Vegetation: Cultivated crops, pasture, and woodland
Slope range: 2 to 35 percent
Elevation: 800 to 1,000 feet
Flooding: None
Drainage pattern: Dendritic

Composition

Percent of survey area: 10
Lodi soils—64 percent
Carbo soils—15 percent
Oaklet soils—12 percent
Minor soils—9 percent

Soil Properties and Qualities

Lodi

Depth: Very deep
Drainage class: Well drained
Parent material: Residuum derived from limestone
Permeability: Moderate
Texture class: Clayey

Carbo

Depth: Moderately deep
Drainage class: Well drained
Parent material: Residuum derived from limestone
Permeability: Slow
Texture class: Clayey

Oaklet

Depth: Very deep
Drainage class: Well drained
Parent material: Residuum derived from limestone
Permeability: Slow
Texture class: Clayey

Minor soils

- Limestone rock outcrop
- Well drained Timberville soils
- Pits, bedrock

2. Dekalb-Massanutten-Rock Outcrop

Rock outcrop and moderately deep, strongly sloping to very steep, well drained soils that have a loamy subsoil

Setting

Topography: Ridge summits and side slopes (fig. 3)
Location: Massanutten Mountains
Vegetation: Mixed hardwoods and pines
Slope range: 2 to 70 percent
Elevation: 1,400 to 2,500 feet

Figure 2.—In the foreground, the Lodi-Carbo-Oaklet general soil map unit. In the middleground, Huntington soils are on flood plains and Unison and Monongahela soils are on terraces of the South Fork of the Shenandoah River. In the background, Laidig and Jefferson soils are on benches and foot slopes.

Flooding: None
Drainage pattern: Dendritic

Composition

Percent of the survey area: 8
Dekalb soils—27 percent
Massanutten soils—27 percent
Rock outcrop—17 percent
Minor soils—29 percent

Soil Properties and Qualities

Dekalb

Depth: Moderately deep
Drainage class: Well drained
Parent material: Residuum derived from sandstone
Permeability: Rapid
Texture class: Loamy-skeletal

Massanutten

Depth: Moderately deep
Drainage class: Well drained
Parent material: Residuum derived from sandstone
Permeability: Rapid
Texture class: Sandy-skeletal

Minor soils

- Excessively drained Drall soils
- Well drained Jefferson soils
- Well drained Zepp soils

3. Weikert-Laidig-Berks

Shallow to very deep, gently sloping to very steep, well drained soils that have a loamy subsoil

Setting

Topography: Side slopes and foot slopes (fig. 4)
Location: Side slopes and foot slopes of the Massanutten Mountains

Vegetation: Mixed hardwoods and pines
Slope range: 2 to 55 percent
Elevation: 600 to 1,400
Flooding: None
Drainage pattern: Dendritic

Composition

Percent of survey area: 14
Laidig soils—35 percent
Weikert soils—31 percent
Berks soils—25 percent
Minor soils—9 percent

Soil Properties and Qualities

Weikert

Depth: Shallow
Drainage class: Well drained
Parent material: Residuum derived from shale and sandstone
Permeability: Moderately rapid
Texture class: Loamy-skeletal

Laidig

Depth: Very deep
Drainage class: Well drained
Parent material: Colluvium derived from shale and sandstone
Permeability: Moderate or moderately rapid above the pan; slow or moderately slow in the pan
Texture class: Fine-loamy

Berks

Depth: Moderately deep
Drainage class: Well drained
Parent material: Residuum derived from shale and sandstone
Permeability: Moderately rapid
Texture class: Loamy-skeletal

Minor Soils

- Well drained Gilpin soils

Figure 3.—In the foreground, Unison and Monongahela soils on terraces and Unison soils on flood plains of the South Fork of the Shenandoah River. In the middleground, Weikert, Berks, and Laidig soils are on foot slopes. The Dekalb-Massanutten-Rock outcrop general soil map unit is in the background. It is used mostly as woodland.

Figure 4.—In the foreground, Unison and Monongahela soils on terraces and Sindion and Huntington soils on flood plains of the South Fork of the Shenandoah River. In the background, the Weikert-Laidig-Berks general soil map unit and Kennedy's Peak.

- Well drained Chilhowie soils
- Well drained Edom soils

4. Thurmont

Very deep, gently sloping to moderately steep soils that have a loamy subsoil

Setting

Topography: Alluvial and colluvial fans, benches, and side slopes
Location: Terraces and foot slopes of the Blue Ridge Mountains
Vegetation: Mixed hardwoods and pines
Slope range: 2 to 25 percent
Elevation: 900 to 1,200 feet
Flooding: None
Drainage pattern: Dendritic

Composition

Percent of survey area: 6
Thurmont soils—100 percent

Soil Properties and Qualities

Depth: Very deep
Drainage class: Well drained
Parent material: Colluvium derived from quartzite and granite
Permeability: Moderate
Texture class: Fine-loamy

5. Edgemont-Dekalb

Moderately deep and deep, strongly sloping to very steep, well drained soils that have a loamy subsoil

Setting

Topography: Side slopes and foot slopes
Location: Quartzite ridges of the Blue Ridge Mountains
Vegetation: Mixed hardwoods and pines
Slope range: 2 to 55 percent
Elevation: 1,400 to 2,600 feet
Flooding: None
Drainage pattern: Dendritic

Composition

Percent of survey area: 7
Edgemont soils—54 percent
Dekalb—42 percent
Minor soils—4 percent

Soil Properties and Qualities

Edgemont

Depth: Deep
Drainage class: Well drained
Parent material: Residuum derived from quartzite
Permeability: Moderate
Texture class: Fine-loamy

Dekalb

Depth: Moderately deep
Drainage class: Well drained
Parent material: Residuum derived from quartzite and sandstone
Permeability: Rapid
Texture class: Loamy-skeletal

Minor Soils

- Rock outcrop

6. Sylvatus-Sylco

Shallow and moderately deep, moderately steep to very steep, well drained soils that have a loamy subsoil

Setting

Topography: Side slopes
Location: Quartzite ridges of the Blue Ridge Mountains
Vegetation: Mixed hardwoods and pines
Slope range: 2 to 55 percent
Elevation: 1,400 to 2,600 feet
Flooding: None
Drainage pattern: Dendritic

Composition

Percent of survey area: 7
Sylvatus soils—60 percent
Sylco soils—40 percent

Soil Properties and Qualities

Sylvatus

Depth: Shallow
Drainage class: Well drained
Parent material: Residuum derived from metasedimentary rock
Permeability: Moderate
Texture class: Loamy-skeletal

Sylco

Depth: Moderately deep
Drainage class: Well drained
Parent material: Residuum derived from metasedimentary rock
Permeability: Moderate
Texture class: Loamy-skeletal

7. Edneytown-Peaks

Very deep and moderately deep, gently sloping to very steep, well drained soils that have a loamy subsoil

Setting

Topography: Ridge summits and side slopes
Location: Blue Ridge Mountains
Vegetation: Mixed hardwoods and pines
Slope range: 2 to 70 percent
Elevation: 1,250 to 2,800 feet
Flooding: None

Composition

Percent of survey area: 8
Edneytown soils—71 percent
Peaks—29 percent

Soil Properties and Qualities

Edneytown

Depth: Very deep
Drainage class: Well drained
Parent material: Residuum derived from granite
Permeability: Moderate
Texture class: Fine-loamy

Peaks

Depth: Moderately deep
Drainage class: Well drained
Parent material: Residuum derived from granite
Permeability: Moderate
Texture class: Loamy-skeletal

8. Catoctin-Myersville-Fauquier

Moderately deep to very deep, gently sloping to steep,

well drained soils that have a clayey and loamy subsoil

Setting

Topography: Summits of ridges and side slopes
Location: Blue Ridge Mountains
Vegetation: Mixed hardwoods and pines
Slope range: 2 to 70 percent
Elevation: 1,500 to 2,600 feet
Flooding: None
Drainage pattern: Dendritic

Composition

Percent of the survey area: 12
Catoctin soils—39 percent
Myersville soils—30 percent
Fauquier soils—31 percent

Soil Properties and Qualities

Catoctin

Depth: Moderately deep
Drainage class: Well drained
Parent material: Residuum derived from greenstone
Permeability: Moderately rapid
Texture class: Loamy-skeletal

Myersville

Depth: Deep
Drainage: Well drained
Parent material: Residuum derived from greenstone
Permeability: Moderate
Texture class: Fine-loamy

Fauquier

Depth: Very deep
Drainage class: Well drained
Parent material: Residuum derived from greenstone
Permeability: Moderate
Texture class: Clayey

9. Braddock-Monongahela-Unison

Very deep, gently sloping to moderately steep, well drained soils that have a clayey and loamy subsoil

Setting

Topography: Broad terraces and alluvial and colluvial fans and benches
Location: Terraces along the South Fork of the Shenandoah River and Hawksbill Creek
Vegetation: Cultivated crops and pastures
Slope range: 2 to 25 percent
Elevation: 600 to 1,000 feet
Flooding: None
Drainage pattern: Dendritic

Composition

Percent of survey area: 20
Braddock soils—56 percent
Monongahela soils—15 percent
Unison soils—13 percent
Minor soils—16 percent

Soil Properties and Qualities

Braddock

Depth: Very deep
Drainage class: Well drained
Parent material: Alluvium and colluvium derived from crystalline rock
Permeability: Moderate
Texture class: Clayey

Unison

Depth: Very deep
Drainage class: Well drained
Parent material: Alluvium and colluvium derived from acid, crystalline rock
Permeability: Moderate
Texture class: Clayey

Monongahela

Depth: Very deep
Drainage class: Moderately well drained
Parent material: Alluvium derived from acid sandstone and shale
Permeability: Moderate above the fragipan, moderately slow in the fragipan
Texture class: Fine-loamy

Minor Soils

- Well drained Dyke soils
- Moderately well drained Cotaco soils
- Moderately well drained Zoar soils
- Somewhat poorly drained Tygart soils
- Poorly drained Maurertown soils
- Poorly drained Purdy soils
- Urban land

10. Sherando

Very deep, gently sloping and strongly sloping soils that have a loamy subsoil

Setting

Topography: Alluvial and colluvial fans, and benches and side slopes
Location: Terraces and foot slopes of the Blue Ridge Mountains
Vegetation: Mixed hardwoods and pines; pasture
Slope range: 2 to 15 percent
Elevation: 700 to 1,100 feet
Flooding: None
Drainage pattern: Dendritic

Composition

Percent of survey area: 2
Sherando soils—100 percent

Soil Characteristics

Depth: Very deep
Drainage class: Well drained
Parent material: Colluvium derived from quartzite and granite
Permeability: Rapid
Texture class: Loamy-skeletal

11. Craigsville-Huntington

Very deep, nearly level, well drained soils that have a loamy subsoil

Setting

Topography: Meandering flood plains and stream channels
Location: Flood plains along streams in the Valley and Ridge province
Vegetation: Mixed hardwoods or cultivated crops
Slope range: 0 to 4 percent
Elevation: 400 to 600 feet
Flooding: Occasional
Drainage pattern: Open ditches

Composition

Percent of survey area: 6
Craigsville soils—35 percent
Huntington soils—20 percent
Minor soils—45 percent

Soil Properties and Qualities

Craigsville

Depth: Very deep
Drainage class: Well drained
Parent material: Alluvium derived from soils that formed in limestone, shale, and sandstone
Permeability: Moderately rapid
Texture class: Coarse-loamy

Huntington

Depth: Very deep
Drainage class: Well drained
Parent material: Alluvium derived from soils that formed in limestone, sandstone, and shale
Permeability: Moderate
Texture class: Fine-silty

Minor Soils

- Well drained Biltmore soils
- Well drained Combs soils
- Well drained Wheeling soils
- Moderately well drained Sindion soils

Detailed Soil Map Units

The map units delineated on the detailed maps at the back of this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses. More information about each map unit is given under the heading "Use and Management of the Soils."

A map unit delineation on a map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils or miscellaneous areas. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils and miscellaneous areas are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some "included" areas that belong to other taxonomic classes.

Most included soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, inclusions. They may or may not be mentioned in the map unit description. Other included soils and miscellaneous areas, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, inclusions. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The included areas of contrasting soils or miscellaneous areas are mentioned in the map unit descriptions. A few included areas may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of included areas in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans, but if intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Fauquier silt loam, 2 to 7 percent slopes, is a phase of the Fauquier soil series.

Some map units, called complexes, are made up of two or more major soils or miscellaneous areas.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Peaks-Edneytown complex, 35 to 55 percent slopes, extremely stony, is an example.

This survey includes *miscellaneous areas.* Such areas have little or no soil material and support little or no vegetation. Pits, bedrock, is an example.

Detailed map unit composition was decided by the subjective judgement method. Subjective judgement implies that 3 to 30 or more arbitrarily selected observations and fewer than 10 randomly selected observations are used in a subjective formulation of map unit composition. The soil survey project staff relied mainly on impressions from field experience.

Table 5 gives the acreage and proportionate extent of each map unit. Other tables (see "Tables" in "Contents") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

Soil Descriptions

1C—Berks-Weikert complex, 7 to 15 percent slopes

Setting

Landform: Uplands in the Valley and Ridge province
Positions on the landform: Strongly sloping, convex side slopes, summits, and shoulders of hills and ridges
Shape of areas: Long and winding
Size of areas: 7 to 100 acres
Composition of the map unit: Berks and similar inclusions—50 percent; Weikert and similar inclusions—45 percent; contrasting inclusions—5 percent

Contrasting Inclusions

- Areas of the well drained Laidig soils that have a fragipan and that are in positions on the landscape similar to those of the Berks and Weikert soils
- Areas of the very deep, well drained Jefferson soils in positions on the landscape similar to those of the Berks and Weikert soils
- Areas of Rock outcrops on side slopes and summits of ridges

Similar Inclusions

- Areas of soils on slopes of less than 7 percent
- Areas of soils that have a very stony surface layer and that are in positions on the landscape similar to those of the Berks and Weikert soils

Typical Profile

Berks

Surface layer:
0 to 2 inches, dark grayish brown channery silt loam

Subsoil:
2 to 12 inches, yellowish brown channery silt loam
12 to 24 inches, yellowish brown very channery silt loam

Substratum:
24 to 30 inches, yellowish brown very channery silt loam

Bedrock:
30 inches, fractured shale

Weikert

Surface layer:
0 to 3 inches, dark brown channery silt loam

Subsoil:
3 to 14 inches, yellowish brown very channery silt loam

Substratum:
14 to 18 inches, yellowish brown extremely channery silt loam

Bedrock:
18 inches, fractured shale

2A—Biltmore fine sandy loam, 0 to 4 percent slopes, occasionally flooded

Setting

Landform: Flood plains
Positions on the landform: Nearly level and gently sloping flood plains
Shape of areas: Long and narrow
Size of areas: 5 to 30 acres
Composition of the map unit: Biltmore and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of the very deep, well drained Huntington soils in slightly higher positions on the landscape

Similar Inclusions

- Areas of the very deep, well drained Combs soils in landscape positions near the Biltmore soil

• Areas of well drained soils that have a gravelly sandy loam surface layer and that are in scour channels

Typical Profile

Surface layer:
0 to 7 inches, dark brown, fine sandy loam

Substratum:
7 to 40 inches, dark yellowish brown, loamy fine sand
40 to 72 inches, dark yellowish brown, loamy sand

3B—Braddock loam, 2 to 7 percent slopes

Setting

Landform: Alluvial terraces (fig. 5)
Positions on the landform: Gently sloping summits, shoulders, and side slopes
Shape of areas: Long and winding
Size of areas: 7 to 75 acres
Composition of the map unit: Braddock and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

• Areas of the moderately well drained Cotaco soils in slightly lower positions on the landscape
• Areas of the moderately well drained Monongahela soils that have a fragipan in the subsoil and that are in nearly level positions on the landscape
• Areas of soils that have slope of more than 7 percent

Similar Inclusions

• Areas of soils that have a gravelly loam surface layer and a yellowish brown subsoil and that are in positions on the landscape similar to those of the Braddock soil

Typical Profile

Surface layer:
0 to 7 inches, brown loam

Subsoil:
7 to 14 inches, red clay loam
14 to 34 inches, dark red clay
34 to 43 inches, red and brownish yellow clay

Substratum:
43 to 62 inches, red and brownish yellow clay loam

3C—Braddock loam, 7 to 15 percent slopes

Setting

Landform: Alluvial terraces
Positions on the landform: Strongly sloping shoulders and side slopes
Shape of areas: Broad
Size of areas: 7 to 100 acres
Composition of the map unit: Braddock and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

• Areas of the moderately well drained Cotaco soils in depressions and at the heads of drainageways
• Areas of the moderately well drained Monongahela soils that have a fragipan in the subsoil and that are in gently sloping positions on the landscape
• Areas of soils that have slope of more than 15 percent

Similar Inclusions

• Areas of soils that have a gravelly loam surface layer and a yellowish brown subsoil and that are in positions on the landscape similar to those of the Braddock soil
• Areas of soils that have slope of less than 7 percent

Typical Profile

Surface layer:
0 to 7 inches, brown loam

Subsoil:
7 to 14 inches, red clay loam
14 to 34 inches, dark red clay
34 to 43 inches, red and brownish yellow clay

Substratum:
43 to 62 inches, red and brownish yellow clay loam

3D—Braddock loam, 15 to 25 percent slopes

Setting

Landform: Alluvial terraces
Positions on the landform: Moderately steep sides slopes
Shape of areas: Long and winding
Size of areas: 7 to 50 acres
Composition of the map unit: Braddock and similar

Figure 5.—From foreground to background, Braddock loam, 2 to 7 percent slopes, and other phases of Braddock soils. These soils formed in alluvium or colluvium derived from crystalline rocks of the Blue Ridge Mountains.

inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of severely eroded, moderately deep soils
- Areas of soils that have slope of more than 25 percent

Similar Inclusions

- Areas of soils that have a gravelly loam surface layer and a yellowish brown subsoil and that are in positions on the landscape similar to those of the Braddock soil

Typical Profile

Surface layer:
0 to 7 inches, brown loam

Subsoil:
7 to 14 inches, red clay loam
14 to 34 inches, dark red clay
34 to 43 inches, red and brownish yellow clay

Substratum:
43 to 62 inches, red and brownish yellow clay loam

4B—Braddock cobbly loam, 2 to 7 percent slopes

Setting

Landform: Alluvial terraces
Positions on the landform: Gently sloping summits, shoulders, and side slopes
Shape of areas: Broad
Size of areas: 7 to 50 acres
Composition of the map unit: Braddock cobbly loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the moderately well drained Cotaco soils in slightly lower positions on the landscape
- Areas of the moderately well drained Monongahela

soils that have a fragipan in the subsoil and that are in nearly level positions on the landscape

Similar Inclusions

- Areas of well drained soils that have a gravelly loam surface layer and a yellowish brown subsoil and that are in positions on the landscape similar to those of the Braddock soil
- Areas of soils that have slope of more than 7 percent

Typical Profile

Surface layer:
0 to 7 inches, brown cobbly loam

Subsoil:
7 to 14 inches, red clay loam
14 to 34 inches, dark red clay
34 to 43 inches, red and brownish yellow clay

Substratum:
43 to 62 inches, red and brownish yellow loam

4C—Braddock cobbly loam, 7 to 15 percent slopes

Setting

Landform: Alluvial terraces
Positions on the landform: Strongly sloping shoulders and side slopes
Shape of areas: Broad
Size of areas: 7 to 50 acres
Composition of the map unit: Braddock cobbly loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the moderately well drained Cotaco soils at heads of drainageways
- Areas of the moderately well drained Monongahela soils that have a fragipan in the subsoil and that are in gently sloping positions on the landscape
- Areas of soils that have slope of more than 15 percent

Similar Inclusions

- Areas of well drained soils that have a gravelly loam surface layer and a yellowish brown subsoil and that are in positions on the landscape similar to those of the Braddock soil
- Areas of soils that have slope of less than 7 percent

Typical Profile

Surface layer:
0 to 7 inches, brown cobbly loam

Subsoil:
7 to 14 inches, red clay loam
14 to 34 inches, dark red clay
34 to 43 inches, red and brownish yellow clay

Substratum:
43 to 62 inches, red and brownish yellow loam

4D—Braddock cobbly loam, 15 to 25 percent slopes

Setting

Landform: Alluvial and colluvial terraces
Positions on the landform: Moderately steep escarpments on terraces
Shape of areas: Long and winding
Size of areas: 7 to 50 acres
Composition of the map unit: Braddock cobbly loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of moderately deep, well drained soils in severely eroded positions on the landscape

Similar Inclusions

- Areas of well drained soils that have a gravelly loam surface layer and a yellowish brown subsoil and that are in positions on the landscape similar to those of the Braddock soil

Typical Profile

Surface layer:
0 to 7 inches, brown cobbly loam

Subsoil:
7 to 14 inches, red clay loam
14 to 34 inches, dark red clay
34 to 43 inches, red and brownish yellow clay

Substratum:
43 to 62 inches, red and brownish yellow loam

5C—Braddock-Urban land complex, 2 to 15 percent slopes

Setting

Landform: Alluvial terraces

Positions on the landform: Gently sloping and strongly sloping summits, shoulders, and side slopes
Shape of areas: Square
Size of areas: 7 to 30 acres
Composition of the map unit: Braddock-Urban land complex and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of the well drained Monongahela soils that have a fragipan in the subsoil and that are in gently sloping positions on the landscape

Similar Inclusions

- Areas of well drained soils that have a cobbly and gravelly surface layer and a yellowish brown subsoil and that are in positions on the landscape similar to those of the Braddock soil and Urban land

Typical Profile

Braddock

Surface layer:
0 to 7 inches, brown loam

Subsoil:
7 to 14 inches, red clay loam
14 to 34 inches, dark red clay
34 to 43 inches, red and brownish yellow clay

Substratum:
43 to 62 inches, red and brownish yellow loam

Urban land

Single family homes, playgrounds, and parks

6C—Carbo-Rock outcrop complex, 2 to 15 percent slopes

Setting

Landform: Valleys on uplands
Positions on the landform: Gently sloping and strongly sloping side slopes, summits, and shoulders
Shape of areas: Irregularly shaped
Size of areas: 10 to 30 acres
Rockiness: Rock outcrops 30 to 100 feet apart cover 35 percent of the area
Composition of the map unit: Carbo silt loam and similar inclusions—55 percent; Rock outcrop and similar inclusions—35 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of very deep, well drained Oaklet soils in positions on the landscape similar to those of the Carbo soil and Rock outcrop
- Areas of soils that have bedrock at a depth of less than 20 inches and that are in positions on the landscape similar to those of the Carbo soil and Rock outcrop

Similar Inclusions

- Areas of moderately deep soils that have a surface layer of silty clay loam or clay and a yellowish red subsoil and that are in positions on the landscape similar to those of the Carbo soil and Rock outcrop

Typical Profile

Carbo

Surface layer:
0 to 7 inches, brown silt loam

Subsoil:
7 to 19 inches, strong brown clay
19 to 38 inches, yellowish brown clay

Bedrock:
38 to 40 inches, limestone

6E—Carbo-Rock outcrop complex, 15 to 35 percent slopes

Setting

Landform: Valleys on uplands
Positions on the landform: Moderately steep and steep side slopes
Shape of areas: Irregularly shaped
Size of areas: 10 to 50 acres
Rockiness: Rock outcrops 30 to 100 feet apart cover 35 percent of the area
Composition of the map unit: Carbo silt loam and similar inclusions—55 percent; Rock outcrop and similar inclusions—35 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of the very deep, well drained Oaklet soils in positions on the landscape similar to those of the Carbo soil and Rock outcrop

• Areas of soils that have bedrock at a depth of less than 20 inches and that are in positions on the landscape similar to those of the Carbo soil and Rock outcrop

Similar Inclusions

• Areas of moderately deep soils that have a surface layer of silty clay loam or clay and a yellowish red subsoil and that are in positions on the landscape similar to those of the Carbo soil and Rock outcrop

Typical Profile

Carbo

Surface layer:
0 to 7 inches, brown silt loam

Subsoil:
7 to 19 inches, strong brown clay
19 to 38 inches, yellowish brown clay

Bedrock:
38 inches, limestone

7C—Catoctin silt loam, 7 to 15 percent slopes

Setting

Landform: Mountainsides
Positions on the landform: Strongly sloping, convex summits and shoulders
Shape of areas: Long and narrow, following the summits
Size of areas: 50 to 300 acres
Composition of the map unit: Catoctin silt loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

• Areas of the deep, well drained Fauquier soils in smoother positions on the convex summits and shoulders of ridges
• Areas of deep, well drained soils that have a brown subsoil and that are in smoother positions on lower convex summits and shoulders of ridges

Similar Inclusions

• Areas of well drained soils that have slope of more than 15 percent and that are in positions on the landscape similar to those of the Catoctin soil
• Areas of soils that have a stony surface layer and scattered areas of rock outcrop in positions on the landscape similar to those of the Catoctin soil

Typical Profile

Surface layer:
0 to 4 inches, dark brown silt loam

Subsoil:
4 to 15 inches, dark brown channery silty clay loam
15 to 24 inches, brown very channery silt loam

Substratum:
24 to 36 inches, brown and yellowish red very channery silt loam

Bedrock:
36 inches, hard greenstone

7D—Catoctin silt loam, 15 to 35 percent slopes

Setting

Landform: Mountainsides
Positions on the landform: Moderately steep and steep mountainsides
Shape of areas: Irregularly elongated
Size of areas: 50 to 300 acres
Composition of the map unit: Catoctin silt loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

• Areas of the deep, well drained Fauquier soils in positions on the landscape similar to those of the Catoctin soil

Similar Inclusions

• Areas of well drained soils that have slope of less than 15 percent and that are in positions on the landscape similar to those of the Catoctin soil
• Areas of soils that have a stony surface layer and scattered rock outcrops and that are in positions on the landscape similar to those of the Catoctin soil

Typical Profile

Surface layer:
0 to 4 inches, dark brown silt loam

Subsoil:
4 to 15 inches, dark brown channery silty clay loam
15 to 24 inches, brown very channery silt loam

Substratum:
24 to 36 inches, brown and yellowish red very channery silt loam

Bedrock:
36 inches, hard greenstone

8F—Catoctin-Rock outcrop complex, 55 to 70 percent slopes, extremely stony

Setting

Landform: Mountainsides
Positions on the landform: Very steep side slopes
Shape of areas: Irregular
Size of areas: 150 to 450 acres
Stoniness: Stones 10 to 24 inches in diameter about 1.5 to 3.0 feet apart cover 3 to 15 percent of the surface
Composition of the map unit: Catoctin silt loam and similar inclusions—55 percent; Rock outcrop and similar inclusions—30 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained Myersville soils in positions on the landscape similar to those of the Catoctin soil and Rock outcrop

Similar Inclusions

- Areas without rock outcrops

Typical Profile

Catoctin

Surface layer:
0 to 4 inches, dark brown silt loam

Subsoil:
4 to 15 inches, dark brown channery silty clay loam
15 to 24 inches, brown very channery silt loam

Substratum:
24 to 36 inches, brown and yellowish red very channery silt loam

Bedrock:
36 inches, hard greenstone

9C—Chilhowie silty clay loam, 7 to 15 percent slopes

Setting

Landform: Uplands in the Valley and Ridge province
Positions on the landform: Strongly sloping side slopes
Shape of areas: Irregular
Size of areas: 7 to 30 acres
Composition of the map unit: Chilhowie silty clay loam and similar inclusions—75 percent; contrasting inclusions—25 percent

Contrasting Inclusions

- Areas of the well drained Edom soils that are deeper to bedrock and that are in positions on the landscape similar to those of the Chilhowie soil
- Areas of the well drained Carbo soils that have a thicker solum than the Chilhowie soil and that are in similar positions on the landscape
- Areas of moderately deep, well drained soils in positions on the landscape similar to those of the Chilhowie soil
- Small areas of rock outcrop

Similar Inclusions

- Areas of soils that have a silt loam surface layer and that are in positions on the landscape similar to those of the Chilhowie soil

Typical Profile

Surface layer:
0 to 8 inches, brown silty clay loam

Subsoil:
8 to 16 inches, reddish yellow silty clay
16 to 20 inches, strong brown silty clay

Substratum:
20 to 36 inches, yellowish brown very channery silty clay

Bedrock:
36 inches, hard, calcareous shale

9D—Chilhowie silty clay loam, 15 to 25 percent slopes

Setting

Landform: Uplands in the Valley and Ridge province
Positions on the landform: Moderately steep side slopes of hills and ridges
Shape of areas: Long and winding
Size of areas: 7 to 55 acres
Composition of the map unit: Chilhowie silty clay loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained Edom soils that are deeper to bedrock and that are in positions on the landscape similar to those of the Chilhowie soil
- Areas of the well drained Carbo soils that have a thicker solum and that are in positions on the landscape similar to those of the Chilhowie soil

• Areas of shallow, well drained soils in positions on the landscape similar to those of the Chilhowie soil
• Small areas of rock outcrop

Similar Inclusions

• Areas of soils that have a silt loam surface layer and that are in positions on the landscape similar to those of the Chilhowie soil

Typical Profile

Surface layer:
0 to 8 inches, brown silty clay loam

Subsoil:
8 to 16 inches, reddish yellow silty clay
16 to 20 inches, strong brown silty clay

Substratum:
20 to 36 inches, yellowish brown very channery silty clay

Bedrock:
36 inches, hard, calcareous shale

10A—Combs fine sandy loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landform: Flood plains
Positions on the landform: Nearly level and gently sloping
Shape of areas: Long and narrow
Size of areas: 7 to 40 acres
Composition of the map unit: Combs fine sandy loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

• Areas of Craigsville soils that have a skeletal subsoil in scoured channels
• Areas of Biltmore soils that have a rapid or very rapid permeability adjacent to streams
• Areas of somewhat poorly drained soils in depressions

Similar Inclusions

• Areas of soils that do not have a mollic epipedon and that are in positions on the landscape similar to those of the Combs soil

Typical Profile

Surface layer:
0 to 11 inches, dark brown fine sandy loam

Subsurface layer:
11 to 18 inches, dark brown fine sandy loam

Subsoil:
18 to 44 inches, dark yellowish brown fine sandy loam

Substratum:
44 to 62 inches, dark brown sandy loam

11B—Cotaco loam, 2 to 7 percent slopes

Setting

Landform: Alluvial and colluvial terraces
Positions on the landform: Gently sloping summits and side slopes
Shape of areas: Irregular or long and narrow
Size of areas: 7 to 50 acres
Composition of the map unit: Cotaco loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

• Areas of Sherando soils that have more than 35 percent rock fragments in the soil profile and that are in positions on the landscape similar to those of the Cotaco soil
• Areas of Monongahela soils that have a fragipan in the subsoil and that are in slightly higher positions on the landscape
• Areas of Tygart soils that are more poorly drained than the Cotaco soil and that are in low-lying positions on the landscape

Similar Inclusions

• Areas of soils that have a cobbly surface layer and that are in positions on the landscape similar to those of the Cotaco soil
• Areas of soils that have slope of more than 7 percent

Typical Profile

Surface layer:
0 to 9 inches, dark brown loam
9 to 15 inches, yellowish brown loam that has masses of iron accumulations

Subsoil:
15 to 23 inches, light yellowish brown loam that has iron depletions and masses of iron accumulations
23 to 33 inches, brown loam that has iron depletions and masses of iron accumulations

33 to 52 inches, grayish brown loam that has masses of iron accumulations

Substratum:
52 to 72 inches, light gray loam that has masses of iron accumulations

12A—Craigsville cobbly sandy loam, 0 to 4 percent slopes, frequently flooded

Setting

Landform: Flood plains
Positions on the landform: Nearly level and gently sloping
Shape of areas: Long and winding, following the course of the stream
Size of areas: 10 to 50 acres
Composition of the map unit: Craigsville cobbly sandy loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

• Areas of the well drained Combs soils that have fewer rock fragments in the soil profile and that are in slightly higher positions on the landscape furthermost from the stream

Similar Inclusions

• Areas of the well drained Sherando soils in positions not subject to flooding

Typical Profile

Surface layer:
0 to 7 inches, brown cobbly sandy loam

Subsoil:
7 to 27 inches, dark yellowish brown very cobbly sandy loam
27 to 34 inches, brown very cobbly sandy loam

Substratum:
34 to 62 inches, dark yellowish brown very cobbly sandy loam

13C—Dekalb channery sandy loam, 2 to 15 percent slopes, very stony

Setting

Landform: Mountainsides
Positions on the landform: Gently sloping and strongly sloping summits and side slopes
Shape of areas: Long and winding
Size of areas: 10 to 50 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Dekalb channery sandy loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

• Areas of the deep, excessively drained Drall soils in positions on the landscape similar to those of the Dekalb soil
• Areas of rock outcrop along tops of convex summits of ridges

Similar Inclusions

• Areas of soils that have an extremely stony surface layer and that are at heads of drainageways

Typical Profile

Surface layer:
0 to 4 inches, dark gray channery sandy loam

Subsurface layer:
4 to 7 inches, light yellowish brown channery sandy loam

Subsoil:
7 to 32 inches, yellowish brown very channery sandy loam

Substratum:
32 to 38 inches, light yellowish brown very channery sandy loam

Bedrock:
38 inches, hard sandstone

13D—Dekalb channery sandy loam, 15 to 35 percent slopes, very stony

Setting

Landform: Mountainsides
Positions on the landform: Moderately steep and steep side slopes
Shape of areas: Irregular
Size of areas: 50 to more than 300 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Dekalb channery sandy loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of the deep, excessively drained Drall soils in positions on the landscape similar to those of the Dekalb soil
- Areas of rock outcrop in positions on the landscape similar to those of the Dekalb soil
- Areas that have slope of more than 35 percent

Similar Inclusions

- Areas of soils that have an extremely stony surface layer and that are at heads of drainageways and along drainageways

Typical Profile

Surface layer:
0 to 4 inches, dark gray channery sandy loam

Subsurface layer:
4 to 7 inches, light yellowish brown channery sandy loam

Subsoil:
7 to 32 inches, yellowish brown very channery sandy loam

Substratum:
32 to 38 inches, light yellowish brown very channery sandy loam

Bedrock:
38 inches, hard sandstone

13E—Dekalb channery sandy loam, 35 to 55 percent slopes, very stony

Setting

Landform: Mountainsides
Positions on the landform: Very steep side slopes
Shape of areas: Long and winding
Size of areas: 50 to more than 300 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Dekalb channery sandy loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of the deep, excessively drained Drall soils in higher positions adjacent to convex summits of ridges
- Areas of rock outcrop in positions on the landscape similar to those of the Dekalb soil
- Rubbly areas adjacent to steep, convex summits of ridges

Similar Inclusions

- Areas of soils that have an extremely stony surface layer and that are in positions on the landscape similar to those of the Dekalb soil

Typical Profile

Surface layer:
0 to 4 inches, dark gray channery sandy loam

Subsurface layer:
4 to 7 inches, light yellowish brown channery sandy loam

Subsoil:
7 to 32 inches, yellowish brown very channery sandy loam

Substratum:
32 to 38 inches, light yellowish brown very channery sandy loam

Bedrock:
38 inches, hard sandstone

14E—Dekalb channery sandy loam, 35 to 55 percent slopes, extremely stony

Setting

Landform: Mountainsides
Positions on the landform: Very steep side slopes
Shape of areas: Long and winding
Size of areas: 10 to 100 acres
Stoniness: Stones 10 to 24 inches in diameter about 1.5 to 3.0 feet apart cover 3 to 15 percent of the surface
Composition of the map unit: Dekalb channery sandy loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of the deep, excessively drained Drall soils that are in higher positions adjacent to convex summits of ridges
- Areas of rock outcrop in positions on the landscape similar to those of the Dekalb soil
- Rubbly areas adjacent to steep, convex summits of ridges

Similar Inclusions

- Areas of soils that have a very stony surface layer and that are in positions on the landscape similar to those of the Dekalb soil

Typical Profile

Surface layer:
0 to 4 inches, dark gray channery sandy loam

Subsurface layer:
4 to 7 inches, light yellowish brown channery sandy loam

Subsoil:
7 to 32 inches, yellowish brown very channery sandy loam

Substratum:
32 to 38 inches, light yellowish brown very channery sandy loam

Bedrock:
38 inches, hard sandstone

14F—Dekalb channery sandy loam, 55 to 70 percent slopes, extremely stony

Setting

Landform: Mountainsides
Positions on the landform: Very steep side slopes
Shape of areas: Long and winding
Size of areas: 10 to 100 acres
Stoniness: Stones 10 to 24 inches in diameter about 1.5 to 3.0 feet apart cover 3 to 15 percent of the surface
Composition of the map unit: Dekalb channery sandy loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of deep, excessively drained Drall soils in higher positions adjacent to convex summits of ridges
- Areas of rock outcrop in positions on the landscape similar to those of the Dekalb soil
- Rubbly areas adjacent to steep, convex summits of ridges

Similar Inclusions

- Areas of soils that have a very stony surface layer and that are in positions on the landscape similar to those of the Dekalb soil

Typical Profile

Surface layer:
0 to 4 inches, dark gray channery sandy loam

Subsurface layer:
4 to 7 inches, light yellowish brown channery sandy loam

Subsoil:
7 to 32 inches, yellowish brown very channery sandy loam

Substratum:
32 to 38 inches, light yellowish brown very channery sandy loam

Bedrock:
38 inches, hard sandstone

15F—Dekalb-Edgemont-Rock outcrop complex, 15 to 70 percent slopes, extremely stony

Setting

Landform: Mountainsides
Positions on the landform: Moderately steep to very steep side slopes and shoulders
Shape of areas: Long and broad
Size of areas: 50 to 500 acres
Stoniness: Stones 10 to 24 inches in diameter about 1.5 to 3.0 feet apart cover 3 to 15 percent of the surface
Composition of the map unit: Dekalb channery sandy loam and similar inclusions—35 percent; Edgemont and similar inclusions—30 percent; Rock outcrop and similar inclusions—25 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of rubble at the heads of very steep drainageways

Similar Inclusions

- Areas of well drained soils that have a very stony surface layer and that are in positions on the landscape similar to those of the Dekalb and Edgemont soils and Rock outcrop

Typical Profile

Dekalb

Surface layer:
0 to 4 inches, dark gray channery sandy loam

Subsurface layer:
4 to 7 inches, light yellowish brown channery sandy loam

Subsoil:
7 to 32 inches, yellowish brown very channery sandy loam

Substratum:
32 to 38 inches, light yellowish brown very channery sandy loam

Bedrock:
38 inches, hard sandstone

Edgemont

Surface layer:
0 to 3 inches, very dark grayish brown channery sandy loam

Subsoil:
3 to 12 inches, yellowish brown channery sandy loam
12 to 26 inches, yellowish brown channery loam
26 to 36 inches, yellowish brown very channery loam

Substratum:
36 to 52 inches, yellowish brown very channery loamy sand

Bedrock:
52 inches, hard quartzite

16B—Dyke loam, 2 to 7 percent slopes

Setting

Landform: Colluvial terraces and fans
Positions on the landform: Gently sloping foot slopes
Shape of areas: Broad to narrow
Size of areas: 7 to 75 acres
Composition of the map unit: Dyke loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained Thurmont soils that have a loamy subsoil and that are in slightly higher positions on the landscape
- Areas of well drained soils that have a cobbly subsoil and that are in depressions and shallow drainageways on the landscape

Similar Inclusions

- Areas of the well drained Braddock soils that have a browner surface layer and a yellowish red subsoil and that are in positions on the landscape similar to those of the Dyke soil
- Areas of well drained soils that have a gravelly loam surface layer and a yellowish brown subsoil and that are in positions on the landscape similar to those of the Dyke soil

Typical Profile

Surface layer:
0 to 8 inches, strong brown loam

Subsoil:
8 to 14 inches, red clay
14 to 32 inches, red clay
32 to 44 inches, dark red silty clay loam

Substratum:
44 to 72 inches, red cobbly clay loam

16C—Dyke loam, 7 to 15 percent slopes

Setting

Landform: Colluvial terraces and fans
Positions on the landform: Strongly sloping foot slopes
Shape of areas: Irregular
Size of areas: 7 to 75 acres
Composition of the map unit: Dyke loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained Thurmont soils that have a loamy subsoil and that are in slightly higher positions on the landscape
- Areas of well drained soils that have a cobbly subsoil and that are at the heads of drainageways
- Areas of well drained soils that have slope of more than 15 percent and that are along drainageways

Similar Inclusions

- Areas of the well drained Braddock soils that have a browner surface layer than the Dyke soil, that have a yellowish red subsoil, and that are in positions on the landscape similar to those of the Dyke soil
- Areas of well drained soils that have a gravelly loam surface layer and a yellowish brown subsoil and that are in positions on the landscape similar to those of the Dyke soil
- Areas of well drained soils that have slope of less than 7 percent

Typical Profile

Surface layer:
0 to 8 inches, strong brown loam

Subsoil:

8 to 14 inches, red clay
14 to 32 inches, red clay
32 to 44 inches, dark red silty clay loam

Substratum:
44 to 72 inches, red cobbly clay loam

17C—Edgemont-Dekalb complex, 2 to 15 percent slopes, very stony

Setting

Landform: Mountainsides
Positions on the landform: Gently sloping and strongly sloping summits and side slopes
Shape of areas: Long and winding
Size of areas: 10 to 50 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Edgemont channery sandy loam and similar inclusions—45 percent; Dekalb channery sandy loam and similar inclusions—40 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of rock outcrop along tops of convex summits of ridges
- Areas of well drained soils that have slope of more than 15 percent and that are in positions on the landscape similar to those of the Edgemont and Dekalb soils

Similar Inclusions

- Areas of soils that have an extremely stony surface layer and that are at the heads of drainageways

Typical Profile

Edgemont

Surface layer:
0 to 3 inches, very dark grayish brown channery sandy loam

Subsoil:
3 to 12 inches, yellowish brown channery sandy loam
12 to 26 inches, yellowish brown channery loam
26 to 36 inches, yellowish brown very channery loam

Substratum:
36 to 52 inches, yellowish brown very channery loamy sand

Bedrock:
52 inches, hard quartzite

Dekalb

Surface layer:
0 to 4 inches, dark gray channery sandy loam

Subsurface layer:
4 to 7 inches, light yellowish brown channery sandy loam

Subsoil:
7 to 32 inches, yellowish brown channery sandy loam

Substratum:
32 to 38 inches, light yellowish brown very channery sandy loam

Bedrock:
38 to 40 inches, hard sandstone

17D—Edgemont-Dekalb complex, 15 to 35 percent slopes, very stony

Setting

Landform: Mountainsides
Positions on the landform: Moderately steep and steep mountainsides
Shape of areas: Irregular
Size of areas: 50 to more than 300 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Edgemont channery sandy loam and similar inclusions—45 percent; Dekalb channery sandy loam and similar inclusions—40 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of well drained soils that have slope of more than 35 percent and that are in positions on the landscape similar to those of the Edgmont and Dekalb soils
- Areas of rock outcrop in positions on the landscape similar to those of the Edgmont and Dekalb soils
- Talus deposits at the heads of drainageways

Similar Inclusions

- Areas of soils that have an extremely stony surface layer and that are at the heads of and along drainageways

Typical Profile

Edgemont

Surface layer:

0 to 3 inches, very dark grayish brown channery sandy loam

Subsoil:
3 to 12 inches, yellowish brown channery sandy loam
12 to 26 inches, yellowish brown channery loam
26 to 36 inches, yellowish brown very channery loam

Substratum:
36 to 52 inches, yellowish brown very channery loamy sand

Bedrock:
52 inches, hard quartzite

Dekalb

Surface layer:
0 to 4 inches, dark gray channery sandy loam

Subsurface layer:
4 to 7 inches, light yellowish brown channery sandy loam

Subsoil:
7 to 32 inches, yellowish brown channery sandy loam

Substratum:
32 to 38 inches, light yellowish brown very channery sandy loam

Bedrock:
38 to 40 inches, hard sandstone

17E—Edgemont-Dekalb complex, 35 to 55 percent slopes, very stony

Setting

Landform: Mountainsides
Positions on the landform: Very steep side slopes
Shape of areas: Long and winding
Size of areas: 50 to more than 300 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Edgemont channery sandy loam and similar inclusions—45 percent; Dekalb channery sandy loam and similar inclusions—40 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of well drained soils that have slope of more than 55 percent and that are in positions on the landscape similar to those of the Edgemont and Dekalb soils
- Areas of rock outcrop in positions on the landscape similar to those of the Edgemont and Dekalb soils
- Rubbly areas adjacent to steep, convex summits on ridges

Similar Inclusions

- Areas of soils that have an extremely stony surface layer and that are in positions on the landscape similar to those of the Edgemont and Dekalb soils

Typical Profile

Edgemont

Surface layer:
0 to 3 inches, very dark grayish brown channery sandy loam

Subsoil:
3 to 12 inches, yellowish brown channery sandy loam
12 to 26 inches, yellowish brown channery loam
26 to 36 inches, yellowish brown very channery loam

Substratum:
36 to 52 inches, yellowish brown very channery loamy sand

Bedrock:
52 inches, hard quartzite

Dekalb

Surface layer:
0 to 4 inches, dark gray channery sandy loam

Subsurface layer:
4 to 7 inches, light yellowish brown channery sandy loam

Subsoil:
7 to 32 inches, yellowish brown channery sandy loam

Substratum:
32 to 38 inches, light yellowish brown very channery sandy loam

Bedrock:
38 to 40 inches, hard sandstone

18C—Edneytown loam, 2 to 15 percent slopes

Setting

Landform: Mountainsides
Positions on the landform: Gently sloping to strongly sloping summits and side slopes
Shape of areas: Irregular
Size of areas: 7 to 100 acres

Composition of the map unit: Edneytown loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of the well drained Sherando soils that have more rock fragments than the Edgemont soil and that are in lower, colluvial and alluvial positions
- Areas of soils that have slope of more than 15 percent and that are in slightly higher positions on the landscape
- Areas of well drained, moderately deep soils and that are in positions on the landscape similar to those of the Edneytown soil

Similar Inclusions

- Areas of the well drained Thurmont soils in lower, colluvial positions on the landscape
- Areas of soils that have a very stony surface layer and that are in positions on the landscape similar to those of the Edneytown soil

Typical Profile

Surface layer:
0 to 6 inches, brown loam

Subsurface layer:
6 to 12 inches, yellowish brown loam

Subsoil:
12 to 24 inches, strong brown clay loam
24 to 39 inches, strong brown sandy clay loam

Substratum:
39 to 49 inches, strong brown sandy loam
49 to 62 inches, yellowish brown sandy loam

18D—Edneytown loam, 15 to 35 percent slopes

Setting

Landform: Mountainsides
Positions on the landform: Moderately steep and steep side slopes
Shape of areas: Irregular
Size of areas: 20 to 150 acres
Composition of the map unit: Edneytown loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of moderately well drained soils at the heads and bottoms of steep drainageways
- Areas of well drained, moderately deep soils in positions on the landscape similar to those of the Edneytown soil

Similar Inclusions

- Areas of soils that have a very stony surface layer and that are in positions on the landscape similar to those of the Edneytown soil

Typical Profile

Surface layer:
0 to 6 inches, brown loam

Subsurface layer:
6 to 12 inches, yellowish brown loam

Subsoil:
12 to 24 inches, strong brown clay loam
24 to 39 inches, strong brown sandy clay loam

Substratum:
39 to 49 inches, strong brown sandy loam
49 to 62 inches, yellowish brown sandy loam

18E—Edneytown loam, 35 to 55 percent slopes

Setting

Landform: Mountainsides
Positions on the landform: Very steep side slopes
Shape of areas: Irregular
Size of areas: 20 to 150 acres
Composition of the map unit: Edneytown loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of moderately well drained soils at the heads and bottoms of steep drainageways
- Areas of well drained, moderately deep soils in positions on the landscape similar to those of the Edneytown soil

Similar Inclusions

- Areas of soils that have a very stony surface layer and that are in positions on the landscape similar to those of the Edneytown soil

Typical Profile

Surface layer:
0 to 6 inches, brown loam

Subsurface layer:
6 to 12 inches, yellowish brown loam

Subsoil:
12 to 24 inches, strong brown clay loam
24 to 39 inches, strong brown sandy clay loam

Substratum:
39 to 49 inches, strong brown sandy loam
49 to 62 inches, yellowish brown sandy loam

19C—Edom silty clay loam, 7 to 15 percent slopes

Setting

Landform: Valley uplands
Positions on the landform: Strongly sloping side slopes of hills and ridges
Shape of areas: Irregular
Size of areas: 10 to 75 acres
Composition of the map unit: Edom silty clay loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained, moderately deep Chilhowie soils in positions on the landscape similar to those of the Edom soil
- Areas of the well drained, moderately steep Carbo soils in positions on the landscape similar to those of the Edom soil

Similar Inclusions

- Areas of well drained soils that have a gravelly surface layer and that are on shoulders and nose slopes
- Areas of well drained soils that have a silt loam surface layer and that are in positions on the landscape similar to those of the Edom soil

Typical Profile

Surface layer:
0 to 8 inches, dark brown silty clay loam

Subsoil:
8 to 28 inches, strong brown silty clay
28 to 38 inches, yellowish brown silty clay

Substratum:
38 to 55 inches, brownish yellow channery silty clay loam

Bedrock:
55 inches, fractured, calcareous shale

19D—Edom silty clay loam, 15 to 25 percent slopes

Setting

Landform: Valley uplands
Positions on the landform: Moderately steep side slopes of hills and ridges
Shape of areas: Irregular
Size of areas: 10 to 75 acres
Composition of the map unit: Edom silty clay loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained, moderately deep Chilhowie soils in positions on the landscape similar to those of the Edom soil
- Areas of the well drained, moderately deep Carbo soils in positions on the landscape similar to those of the Edom soil

Similar Inclusions

- Areas of well drained soils that have a gravelly surface layer and that are on shoulders and nose slopes
- Areas of well drained soils that have a silt loam surface layer and that are in positions on the landscape similar to those of the Edom soil

Typical Profile

Surface layer:
0 to 8 inches, dark brown silty clay loam

Subsoil:
8 to 28 inches, strong brown silty clay
28 to 38 inches, yellowish brown silty clay

Substratum:
38 to 55 inches, brownish yellow channery silty clay loam

Bedrock:
55 inches, fractured, calcareous shale

20B—Fauquier silt loam, 2 to 7 percent slopes

Setting

Landform: Mountainsides
Positions on the landform: Gently sloping, broad summits and shoulders of ridges
Shape of areas: Irregular

Size of areas: 7 to 50 acres
Composition of the map unit: Fauquier silt loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of moderately deep, well drained Catoctin soils on the spines of ridges
- Areas of soils that have a very stony surface layer
- Areas where slope is more than 7 percent

Similar Inclusions

- Areas of well drained soils that have a brown fine-loamy subsoil and that are in positions on the landscape similar to those of the Fauquier soil
- Areas of well drained soils that have a surface layer of silty clay loam and that are in positions on the landscape similar to those of the Fauquier soil

Typical Profile

Surface layer:
0 to 7 inches, reddish brown silt loam

Subsoil:
7 to 17 inches, red silty clay loam
17 to 33 inches, red silty clay

Substratum:
33 to 49 inches, red silty clay loam and weathered, fragmented greenstone
49 to 66 inches, weathered greenstone

20C—Fauquier silt loam, 7 to 15 percent slopes

Setting

Landform: Mountainsides
Positions on the landform: Strongly sloping summits and shoulders of ridges and side slopes
Shape of areas: Long and narrow to irregular
Size of areas: 7 to 100 acres
Composition of the map unit: Fauquier silt loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the moderately deep, well drained Catoctin soils in steeper positions on the landscape
- Areas of soils that have a very stony surface layer
- Areas of soils that have slope of more than 15 percent

Similar Inclusions

- Areas of well drained soils that have a brown fine-loamy subsoil and that are in positions on the landscape similar to those of the Fauquier soil
- Areas of well drained soils that have a surface layer of silty clay loam and that are in positions on the landscape similar to those of the Fauquier soil

Typical Profile

Surface layer:
0 to 7 inches, reddish brown silt loam

Subsoil:
7 to 17 inches, red silty clay loam
17 to 33 inches, red silty clay

Substratum:
33 to 49 inches, red silty clay loam and weathered, fragmented greenstone
49 to 66 inches, weathered greenstone

20D—Fauquier silt loam, 15 to 25 percent slopes

Setting

Landform: Mountainsides
Positions on the landform: Moderately steep side slopes
Shape of areas: Irregular
Size of areas: 7 to 50 acres
Composition of the map unit: Fauquier silt loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained, moderately deep Catoctin soils in positions on the landscape similar to those of the Fauquier soil
- Areas of soils that have a very stony surface layer
- Areas of soils that have slope of more than 25 percent

Similar Inclusions

- Areas of well drained soils that have a brown fine-loamy subsoil and that are in positions on the landscape similar to those of the Fauquier soil
- Areas of well drained soils that have a surface layer of silty clay loam and that are in positions on the landscape similar to those of the Fauquier soil

Typical Profile

Surface layer:
0 to 7 inches, reddish brown silt loam

Subsoil:
7 to 17 inches, red silty clay loam

17 to 33 inches, red silty clay

Substratum:
33 to 49 inches, red silty clay loam and weathered, fragmented greenstone
49 to 66 inches, weathered greenstone

20E—Fauquier silt loam, 25 to 35 percent slopes

Setting

Landform: Mountainsides
Positions on the landform: Steep side slopes
Shape of areas: Irregular
Size of areas: 7 to 50 acres
Composition of the map unit: Fauquier silt loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

• Areas of the well drained, moderately deep Catoctin soils in positions on the landscape similar to those of the Fauquier soil

Similar Inclusions

• Areas of well drained soils that have a brown fine-loamy subsoil and that are in positions on the landscape similar to those of the Fauquier soil
• Areas of well drained soils that have a silty clay loam surface layer and that are in positions on the landscape similar to those of the Fauquier soil

Typical Profile

Surface layer:
0 to 7 inches, reddish brown silt loam

Subsoil:
7 to 17 inches, red silty clay loam
17 to 33 inches, red silty clay

Substratum:
33 to 49 inches, red silty clay loam and weathered, fragmented greenstone
49 to 66 inches, weathered greenstone

21C—Fauquier silt loam, 7 to 15 percent slopes, very stony

Setting

Landform: Mountainsides
Positions on the landform: Strongly sloping summits and shoulders of ridges and side slopes
Shape of areas: Long and narrow to irregular
Size of areas: 7 to 100 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Fauquier silt loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

• Areas of the well drained Catoctin soils that have more than 35 percent coarse fragments in the solum and that are in positions on the landscape similar to those of the Fauquier soil
• Areas of soils that have slope of more than 15 percent

Similar Inclusions

• Areas of well drained soils that have a brown fine-loamy subsoil and that are in positions on the landscape similar to those of the Fauquier soil
• Areas of well drained soils that have a surface layer of silty clay loam and that are in positions on the landscape similar to those of the Fauquier soil
• Areas of well drained soils that do not have a very stony surface layer and that are in positions on the landscape similar to those of the Fauquier soil

Typical Profile

Surface layer:
0 to 7 inches, reddish brown silt loam

Subsoil:
7 to 17 inches, red silty clay loam
17 to 33 inches, red silty clay

Substratum:
33 to 49 inches, red silty clay loam and weathered, fragmented greenstone
49 to 66 inches, weathered greenstone

21D—Fauquier silt loam, 15 to 35 percent slopes, very stony

Setting

Landform: Mountainsides
Positions on the landform: Moderately steep and steep side slopes
Shape of areas: Irregular
Size of areas: 10 to 100 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface

Composition of the map unit: Fauquier silt loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained, moderately deep Catoctin soils in the steeper positions on the landscape
- Areas of soils that have slope of more than 35 percent

Similar Inclusions

- Areas of well drained soils that have a brown fine loamy subsoil and that are in positions on the landscape similar to those of the Fauquier soil
- Areas of well drained soils that have a silty clay loam surface layer and that are in positions on the landscape similar to those of the Fauquier soil

Typical Profile

Surface layer:
0 to 7 inches, reddish brown silt loam

Subsoil:
7 to 17 inches, red silty clay loam
17 to 33 inches, red silty clay

Substratum:
33 to 49 inches, red silty clay loam and weathered, fragmented greenstone
49 to 66 inches, weathered greenstone

22C—Gilpin silt loam, 2 to 15 percent slopes

Setting

Landform: Uplands in the Valley and Ridge province
Positions on the landform: Gently sloping to strongly sloping summits and side slopes of hills and ridges
Shape of areas: Broad and irregular
Size of areas: 5 to 75 acres
Composition of the map unit: Gilpin silt loam and similar inclusions—80 percent; contrasting inclusions—20 percent

Contrasting Inclusions

- Areas of the deep, well drained Jefferson soils in colluvial positions on the landscape
- Areas of the well drained Berks soils that have more coarse fragments in the soil profile and that are in positions on the landscape similar to those of the Fauquier soil
- Areas of soils that have slope of more than 15 percent
- Areas of soils that have a gravelly surface layer

Similar Inclusions

- Areas of soils where stones are on the surface

Typical Profile

Surface layer:
0 to 2 inches, dark brown silt loam

Subsoil:
2 to 8 inches, brownish yellow silt loam
8 to 15 inches, yellowish brown silt loam
15 to 24 inches, yellowish brown channery silty clay loam

Substratum:
24 to 36 inches, yellowish brown very channery silt loam

Bedrock:
36 to 38 inches, hard shale

23D—Gilpin silt loam, 15 to 35 percent slopes, very stony

Setting

Landform: Uplands in the Valley and Ridge province
Positions on the landform: Moderately steep and steep side slopes and ridges
Shape of areas: Broad and irregular
Size of areas: 50 to 150 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Gilpin silt loam and similar inclusions—80 percent; contrasting inclusions—20 percent

Contrasting Inclusions

- Areas of the deep, well drained Jefferson soils in colluvial positions on the landscape
- Areas of the well drained Berks soils that have more coarse fragments in the soil profile and that are in positions on the landscape similar to those of the Gilpin soil

Similar Inclusions

- Areas of soils that have an extremely stony surface layer and that are at the heads of drainageways

Typical Profile

Surface layer:
0 to 2 inches, dark brown silt loam

Subsoil:
2 to 8 inches, brownish yellow silt loam
8 to 15 inches, yellowish brown silt loam
15 to 24 inches, yellowish brown channery silty clay loam

Substratum:
24 to 36 inches, yellowish brown very channery silt loam

Bedrock:
36 inches, fractured shale

23E—Gilpin silt loam, 35 to 55 percent slopes, very stony

Setting

Landform: Uplands in the Valley and Ridge province
Positions on the landform: Very steep side slopes of summits and shoulder slopes
Shape of areas: Broad and irregular
Size of areas: 5 to 100 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Gilpin silt loam and similar inclusions—80 percent; contrasting inclusions—20 percent

Contrasting Inclusions

- Areas of the deep, well drained Jefferson soils in colluvial positions
- Areas of the well drained Berks soils that have more coarse fragments in the soil profile and that are in positions on the landscape similar to those of the Gilpin soil

Similar Inclusions

- Areas of soils that have an extremely stony surface layer and that are in positions on the landscape similar to those of the Gilpin soil

Typical Profile

Surface layer:
0 to 2 inches, dark brown silt loam

Subsoil:
2 to 8 inches, brownish yellow silt loam
8 to 15 inches, yellowish brown silt loam
15 to 24 inches, yellowish brown channery silty clay loam

Substratum:
24 to 36 inches, yellowish brown very channery silt loam

Bedrock:
36 inches, fractured shale

24A—Huntington loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landform: Flood plains
Positions on the landform: Nearly level flood plains
Shape of areas: Long and narrow
Size of areas: 7 to 50 acres
Composition of the map unit: Huntington loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of poorly drained soils that have a dark surface layer and that are in low-lying positions on the landscape
- Areas of the moderately well drained Sindion soils in slightly lower positions on the landscape

Similar Inclusions

- Areas of the well drained Combs soils in positions on the landscape similar to those of the Huntington soil

Typical Profile

Surface layer:
0 to 10 inches, dark brown loam

Subsurface layer:
10 to 16 inches, dark brown loam

Subsoil:
16 to 36 inches, dark brown silt loam
36 to 48 inches, dark yellowish brown silt loam

Substratum:
48 to 70 inches, dark brown fine sandy loam

25C—Jefferson fine sandy loam, 2 to 15 percent slopes

Setting

Landform: Colluvial benches and foot slopes
Positions on the landform: Gently sloping and strongly sloping summits and side slopes
Shape of areas: Commonly irregular
Size of areas: 10 to 40 acres
Composition of the map unit: Jefferson fine sandy loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained Laidig soils that have a fragipan at a depth of 30 to 50 inches and that are in positions on the landscape similar to those of the Jefferson soil
- Areas of the well drained Gilpin soils that have bedrock at a depth of 40 inches and that are in slightly higher positions on the landscape

Similar Inclusions

- Areas of soils that have a loam surface layer and a subsoil redder than that of the Jefferson soil and that are in similar positions on the landscape
- Areas of soils that have a stones on the surface and that are in drainageways

Typical Profile

Surface layer:
0 to 5 inches, dark grayish brown fine sandy loam

Subsurface layer:
5 to 12 inches, light yellowish brown fine sandy loam

Subsoil:
12 to 21 inches, yellowish brown loam
21 to 29 inches, strong brown, red, and reddish yellow gravelly sandy clay loam
29 to 44 inches, dark yellowish brown, red, and brown gravelly sandy clay loam
44 to 65 inches, yellowish brown, brownish yellow, yellow, and dark red gravelly sandy clay loam

25D—Jefferson fine sandy loam, 15 to 35 percent slopes

Setting

Landform: Colluvial foot slopes of mountains
Positions on the landform: Moderately steep and steep side slopes
Shape of areas: Narrow to irregular
Size of areas: 7 to 50 acres
Composition of the map unit: Jefferson fine sandy loam and similar inclusions—75 percent; contrasting inclusions—25 percent

Contrasting Inclusions

- Areas of the well drained Laidig soils that have a fragipan at a depth of 30 to 50 inches and that are in positions on the landscape similar to those of the Jefferson soil
- Areas of the well drained Gilpin soils that have bedrock at a depth of 40 inches and that are in slightly higher positions on the landscape

Similar Inclusions

- Areas of soils that have a loam surface layer, that are redder in the subsoil than the Jefferson soil, and that are in similar positions on the landscape
- Areas of soils that have a stones on the surface and that are in drainageways

Typical Profile

Surface layer:
0 to 5 inches, dark grayish brown fine sandy loam

Subsurface layer:
5 to 12 inches, light yellowish brown fine sandy loam

Subsoil:
12 to 21 inches, yellowish brown gravelly loam
21 to 29 inches, strong brown, red, and reddish yellow gravelly sandy clay loam
29 to 44 inches, dark yellowish brown, red, and brown gravelly sandy clay loam
44 to 65 inches, yellowish brown, brownish yellow, yellow, and dark red very gravelly sandy clay loam

25E—Jefferson fine sandy loam, 35 to 55 percent slopes

Setting

Landform: Colluvial mountainsides
Positions on the landform: Very steep side slopes
Shape of areas: Long to irregular
Size of areas: 7 to 100 acres
Composition of the map unit: Jefferson fine sandy loam and similar inclusions—80 percent; contrasting inclusions—20 percent

Contrasting Inclusions

- Areas of the well drained Laidig soils that have a fragipan at a depth of 30 to 50 inches and that are in positions on the landscape similar to those of the Jefferson soil
- Areas of the well drained Gilpin soils that have bedrock at a depth of 40 inches and that are slightly higher than the Jefferson soil on the landscape

Similar Inclusions

- Areas of soils that have a loam surface layer, that are redder in the subsoil than the Jefferson soil, and that are in similar positions on the landscape
- Areas of soils that have stones are on the surface and that are in drainageways

Typical Profile

Jefferson

Surface layer:
0 to 5 inches, dark grayish brown fine sandy loam

Subsurface layer:
5 to 12 inches, light yellowish brown fine sandy loam

Subsoil:
12 to 21 inches, yellowish brown gravelly loam
21 to 29 inches, strong brown, red, and reddish yellow gravelly sandy clay loam
29 to 44 inches, dark yellowish brown, red, and brown gravelly sandy clay loam
44 to 65 inches, yellowish brown, brownish yellow, yellow, and dark red very gravelly sandy clay loam

26E—Jefferson fine sandy loam, 35 to 55 percent slopes, very stony

Setting

Landform: Colluvial mountainsides
Positions on the landform: Very steep side slopes of ridges
Shape of areas: Broad and irregular
Size of areas: 10 to 120 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Jefferson fine sandy loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of the well drained Laidig soils that have a fragipan at a depth of 30 to 50 inches and that are in positions on the landscape similar to those of the Jefferson soil
- Areas of soils where slope is more than 55 percent
- Rubbly areas at the heads of drainageways

Similar Inclusions

- Areas of soils that have a loam surface layer and that are in positions on the landscape similar to those of the Jefferson soil

Typical Profile

Surface layer:
0 to 5 inches, dark grayish brown fine sandy loam

Subsurface layer:
5 to 12 inches, light yellowish brown fine sandy loam

Subsoil:
12 to 21 inches, yellowish brown gravelly loam
21 to 29 inches, strong brown, red, and reddish yellow gravelly sandy clay loam
29 to 44 inches, dark yellowish brown, red, and brown gravelly sandy clay loam
44 to 65 inches, yellowish brown, brownish yellow, yellow, and dark red gravelly sandy clay loam

27C—Laidig channery loam, 2 to 15 percent slopes

Setting

Landform: Colluvial benches and foot slopes
Positions on the landform: Gently sloping and strongly sloping summits, shoulders, and side slopes
Shape of areas: Long and winding
Size of areas: 7 to 100 acres
Composition of the map unit: Laidig channery loam and similar inclusions—75 percent; contrasting inclusions—25 percent

Contrasting Inclusions

- Areas of the moderately deep, well drained Berks soils on uplands and on side slopes of long drainageways
- Areas of the moderately deep, well drained Gilpin soils on uplands
- Areas of the shallow, somewhat excessively drained Weikert soils in positions steeper than those of the Laidig soil

Similar Inclusions

- Areas where large stones are on the surface

Typical Profile

Surface layer:
0 to 2 inches, grayish brown channery loam

Subsurface layer:
2 to 5 inches, yellowish brown channery loam

Subsoil:
5 to 15 inches, yellowish brown channery loam
15 to 30 inches, light yellowish brown channery loam
30 to 41 inches, strong brown very channery sandy loam
41 to 62 inches, strong brown channery sandy loam

28C—Laidig channery loam, 2 to 15 percent slopes, very stony

Setting

Landform: Colluvial benches and foot slopes
Positions on the landform: Gently sloping and strongly sloping summits, shoulders, and side slopes
Shape of areas: Long and winding
Size of areas: 7 to 100 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Laidig channery loam and similar inclusions—75 percent; contrasting inclusions—25 percent

Contrasting Inclusions

- Areas of the moderately deep, well drained Berks soils on uplands and on side slopes of long drainageways
- Areas of the moderately deep, well drained Gilpin soils in positions on the landscape similar to those of the Laidig soil
- Areas of the shallow, well drained Weikert soils in steeper positions on the landscape

Similar Inclusions

- Areas without stones on the surface

Typical Profile

Surface layer:
0 to 2 inches, grayish brown channery loam

Subsurface layer:
2 to 5 inches, yellowish brown channery loam

Subsoil:
5 to 15 inches, yellowish brown channery loam
15 to 30 inches, light yellowish brown channery loam
30 to 41 inches, strong brown very channery sandy loam
41 to 62 inches, strong brown channery sandy loam

28D—Laidig channery loam, 15 to 35 percent slopes, very stony

Setting

Landform: Colluvial mountainsides
Positions on the landform: Moderately steep and steep, concave heads of drainageways and side slopes
Shape of areas: Long and winding
Size of areas: 7 to 100 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Laidig channery loam and similar inclusions—80 percent; contrasting inclusions—20 percent

Contrasting Inclusions

- Areas of the moderately deep, well drained Berks soils on uplands and on side slopes of long drainageways
- Areas of the shallow, somewhat excessively well drained Weikert soils in steeper positions on the landscape

Similar Inclusions

- Areas without stones on the surface
- Areas where slope is less than 15 percent

Typical Profile

Surface layer:
0 to 2 inches, grayish brown channery loam

Subsurface layer:
2 to 5 inches, yellowish brown channery loam

Subsoil:
5 to 15 inches, yellowish brown channery loam
15 to 30 inches, light yellowish brown channery loam
30 to 41 inches, strong brown very channery sandy loam
41 to 62 inches, strong brown channery sandy loam

28E—Laidig channery loam, 35 to 55 percent slopes, very stony

Setting

Landform: Colluvial mountainsides
Positions on the landform: Very steep, concave heads of drainageways and side slopes
Shape of areas: Broad and irregular
Size of areas: 7 to 100 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Laidig channery loam and similar inclusions—80 percent; contrasting inclusions—20 percent

Contrasting Inclusions

- Areas of the moderately deep, well drained Berks soils on uplands and on side slopes of long drainageways
- Areas of the shallow, somewhat excessively well drained Weikert soils on uplands
- Areas of soils that have slope of more than 55 percent

Similar Inclusions

- Areas where fewer stones are on the surface

Typical Profile

Surface layer:
0 to 2 inches, grayish brown channery loam

Subsurface layer:
2 to 5 inches, yellowish brown channery loam

Subsoil:
5 to 15 inches, yellowish brown channery loam
15 to 30 inches, light yellowish brown channery loam
30 to 41 inches, strong brown very channery sandy loam
41 to 62 inches, strong brown channery sandy loam

29B—Lodi silt loam, 2 to 7 percent slopes

Setting

Landform: Valleys on uplands
Positions on the landform: Gently sloping summits and shoulders
Shape of areas: Narrow to broad
Size of areas: 7 to 50 acres
Composition of the map unit: Lodi silt loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of the well drained Timberville soils in low-lying areas adjacent to drainageways
- Small areas of limestone outcrops
- Areas of small sinkholes
- Areas where slope is more than 7 percent

Similar Inclusions

- Areas of soils that have a gravelly loam surface layer and that are in positions on the landscape similar to those of the Lodi soil

Typical Profile

Surface layer:
0 to 6 inches, dark brown silt loam

Subsoil:
6 to 13 inches, strong brown clay loam
13 to 28 inches, red clay
28 to 57 inches, red and yellowish brown clay

Substratum:
57 to 84 inches, red, light brownish yellow, and brownish yellow silty clay loam

29C—Lodi silt loam, 7 to 15 percent slopes

Setting

Landform: Valleys on uplands
Positions on the landform: Strongly sloping side slopes
Shape of areas: Narrow to broad
Size of areas: 7 to 100 acres
Composition of the map unit: Lodi silt loam and similar inclusions—80 percent; contrasting inclusions—20 percent

Contrasting Inclusions

- Areas of the well drained Timberville soils in low-lying areas adjacent to drainageways
- Small areas of limestone outcrops
- Areas where slope is more than 15 percent
- Areas of small sinkholes

Similar Inclusions

- Areas of soils that have a gravelly loam surface layer and that are in positions on the landscape similar to those of the Lodi soil
- Areas where slope is less than 7 percent

Typical Profile

Surface layer:
0 to 6 inches, dark brown silt loam

Subsoil:
6 to 13 inches, strong brown clay loam
13 to 28 inches, red clay
28 to 57 inches, red and yellowish brown clay

Substratum:
57 to 84 inches, red, light brownish yellow, and brownish yellow silty clay loam

29D—Lodi silt loam, 15 to 25 percent slopes

Setting

Landform: Valleys on uplands

Positions on the landform: Moderately steep side slopes
Shape of areas: Long and winding
Size of areas: 7 to 60 acres
Composition of the map unit: Lodi silt loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of the well drained Timberville soils in low-lying areas adjacent to drainageways
- Areas where slope is more than 25 percent
- Areas of rock outcrop

Similar Inclusions

- Areas where slope is less than 15 percent
- Soils that have a silty clay loam surface layer

Typical Profile

Surface layer:
0 to 6 inches, dark brown silt loam

Subsoil:
6 to 13 inches, strong brown clay loam
13 to 28 inches, red clay
28 to 57 inches, red and yellowish brown clay

Substratum:
57 to 84 inches, red, light brownish yellow, and brownish yellow silty clay loam

29E—Lodi silt loam, 25 to 35 percent slopes

Setting

Landform: Valleys on uplands
Positions on the landform: Steep side slopes
Shape of areas: Long and winding
Size of areas: 7 to 50 acres
Composition of the map unit: Lodi silt loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of the well drained Timberville soils in low-lying areas adjacent to drainageways
- Areas where slope is more than 35 percent
- Areas of rock outcrop

Similar Inclusions

- Areas of soils that have slope of less than 25 percent
- Areas of soils that have a silty clay loam surface layer

Typical Profile

Surface layer:
0 to 6 inches, dark brown silt loam

Subsoil:
6 to 13 inches, strong brown clay loam
13 to 28 inches, red clay
28 to 57 inches, red and yellowish brown clay

Substratum:
57 to 84 inches, red, light brownish yellow, and brownish yellow silty clay loam

30C—Massanutten channery loam, 2 to 15 percent slopes

Setting

Landform: Mountainsides
Positions on the landform: Gently sloping and strongly sloping, dissected side slopes
Shape of areas: Long and winding
Size of areas: 10 to 80 acres
Composition of the map unit: Massanutten channery loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of the well drained Gilpin soils that have more clay in the subsoil than the Massanutten soil and that are in slightly lower positions on the landscape
- Areas of soils that have slope of more than 15 percent and that are in positions on the landscape similar to those of the Massanutten soil

Similar Inclusions

- Areas of soils that have a large stones on the surface and that are at the heads of long drainageways

Typical Profile

Surface layer:
0 to 2 inches, brown channery loam

Subsoil:
2 to 12 inches, dark yellowish brown channery loam
12 to 30 inches, yellowish brown channery loam

Bedrock:
30 inches, hard sandstone

31C—Massanutten channery loam, 2 to 15 percent slopes, very stony

Setting

Landform: Mountainsides
Positions on the landform: Gently sloping and strongly sloping convex summits, shoulders, and side slopes
Shape of areas: Long and winding
Size of areas: 10 to 50 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Massanutten channery loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

• Areas of the well drained Gilpin soils that have more clay in the subsoil and that are in slightly lower positions
• Areas of soils that have slope of more than 15 percent and that are in positions on the landscape similar to those of the Massanutten soil

Similar Inclusions

• Areas of soils without stones on the surface in positions on the landscape similar to those of the Massanutten soil

Typical Profile

Surface layer:
0 to 2 inches, brown channery loam

Subsoil:
2 to 12 inches, dark yellowish brown channery loam
12 to 30 inches, yellowish brown channery loam

Bedrock:
30 inches, hard sandstone

31D—Massanutten channery loam, 15 to 35 percent slopes, very stony

Setting

Landform: Mountainsides
Positions on the landform: Moderately steep and steep, dissected side slopes
Shape of areas: Long and winding
Size of areas: 25 to 150 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Massanutten channery loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

• Areas of the well drained Gilpin soils that have more clay in the subsoil and that are in positions on the landscape similar to those of the Massanutten soils
• Areas of the well drained Dekalb soils that have more coarse fragments in the subsoil and that are in positions on the landscape similar to those of the Massanutten soil

Similar Inclusions

• Areas of soils without stones on the surfaces and that are in positions on the landscape similar to those of the Massanutten soil

Typical Profile

Surface layer:
0 to 2 inches, brown channery loam

Subsoil:
2 to 12 inches, dark yellowish brown channery loam
12 to 30 inches, yellowish brown channery loam

Bedrock:
30 inches, hard sandstone

31E—Massanutten channery loam, 35 to 55 percent slopes, very stony

Setting

Landform: Mountainsides
Positions on the landform: Very steep, dissected side slopes
Shape of areas: Long and winding
Size of areas: 40 to 200 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Massanutten channery loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

• Areas of the well drained Gilpin soils that have more clay in the subsoil and that are in positions on the landscape similar to those of the Massanutten soil

• Areas of the well drained Dekalb soils that have more coarse fragments in the subsoil and that are in positions on the landscape similar to those of the Massanutten soil

Similar Inclusions

• Areas of soils without stones on the surface in positions on the landscape similar to those of the Massanutten soil

Typical Profile

Surface layer:
0 to 2 inches, brown channery loam

Subsoil:
2 to 12 inches, dark yellowish brown channery loam
12 to 30 inches, yellowish brown channery loam

Bedrock:
30 inches, hard sandstone

32A—Maurertown silt loam, 0 to 2 percent slopes

Setting

Landform: Alluvial terraces and old river meanders
Positions on the landform: Nearly level summits
Shape of areas: Long and winding
Size of areas: 7 to 50 acres
Composition of the map unit: Maurertown silt loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

• Areas of the moderately well drained Cotaco soils in positions on the landscape similar to those of the Maurertown soil

Similar Inclusions

• Areas of soils that have brighter colors in the upper part of the subsoil and that are in positions on the landscape similar to those of the Maurertown soil

Typical Profile

Surface layer:
0 to 8 inches, dark grayish brown silt loam

Subsoil:
8 to 18 inches, mottled grayish brown silty clay loam
18 to 32 inches, mottled grayish brown silty clay
32 to 44 inches, mottled gray silty clay
44 to 62 inches, gray and yellowish brown silty clay loam

33B—Monongahela loam, 2 to 7 percent slopes

Setting

Landform: Alluvial terraces
Positions on the landform: Gently sloping summits and shoulders
Shape of areas: Broad and irregular or long and winding
Size of areas: 7 to 40 acres
Composition of the map unit: Monongahela loam and similar inclusions—75 percent; contrasting inclusions—25 percent

Contrasting Inclusions

• Areas of the well drained Unison soils in higher positions on the landscape
• Areas of the well drained Braddock soils in higher positions on the landscape
• Areas of soils that have slope of more than 7 percent and that are in positions on the landscape similar to those of the Monongahela soil

Similar Inclusions

• Areas of the moderately well drained Cotaco soils in positions on the landscape similar to those of the Monongahela soil
• Areas of soils that have a cobbly surface layer and that are in positions on the landscape similar to those of the Monongahela soil
• Areas of soils that have slope of more than 7 percent

Typical Profile

Surface layer:
0 to 13 inches, dark yellowish brown loam

Subsoil:
13 to 18 inches, yellowish brown loam
18 to 24 inches, yellowish brown clay loam that has yellowish red masses of iron accumulations and light brownish gray iron depletions
24 to 34 inches, yellowish brown sandy clay loam that has grayish brown iron depletions and strong brown masses of iron accumulations
34 to 52 inches, light olive brown loam that has grayish brown iron depletions and strong brown masses of iron accumulations

Substratum:
52 to 62 inches, yellowish brown loam that has grayish brown iron depletions and strong brown masses of iron accumulations

33C—Monongahela loam, 7 to 15 percent slopes

Setting

Landform: Alluvial terraces
Positions on the landform: Strongly sloping shoulders and side slopes
Shape of areas: Oval or long and winding
Size of areas: 7 to 40 acres
Composition of the map unit: Monongahela loam and similar inclusions—75 percent; contrasting inclusions—25 percent

Contrasting Inclusions

- Areas of the well drained Unison soils in higher positions on the landscape
- Areas of the well drained Braddock soils in higher positions on the landscape
- Areas of soils that have slope of more than 15 percent

Similar Inclusions

- Areas of soils that have slope of less than 7 percent
- Areas of the moderately well drained Cotaco soils in slightly lower positions on the landscape

Typical Profile

Surface layer:
0 to 13 inches, dark yellowish brown loam

Subsoil:
13 to 18 inches, yellowish brown loam
18 to 24 inches, yellowish brown clay loam that has yellowish red masses of iron accumulations and light brownish gray iron depletions
24 to 34 inches, yellowish brown sandy clay loam that has grayish brown iron depletions and strong brown masses of iron accumulations
34 to 52 inches, light olive brown loam that has grayish brown iron depletions and strong brown masses of iron accumulations

Substratum:
52 to 62 inches, yellowish brown loam that has grayish brown iron depletions and strong brown masses of iron accumulations

34C—Myersville-Catoctin complex, 2 to 15 percent slopes, very stony

Setting

Landform: Mountainsides
Positions on the landform: Gently sloping and strongly sloping summits, shoulders, and side slopes
Shape of areas: Irregular
Size of areas: 100 to 600 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Myersville gravelly silt loam and similar inclusions—45 percent; Catoctin silt loam and similar inclusions—30 percent; contrasting inclusions—25 percent

Contrasting Inclusions

- Areas of soils that have a rubbly surface layer and that are in drainageways
- Areas of soils that have an extremely stony surface layer and that are in positions on the landscape similar to those of the Myersville and Catoctin soils
- Areas of colluvial soils that have a dark surface layer and that are on benches, in coves, and in drainageways

Similar Inclusions

- Areas of soils that have slope of less than 15 percent

Typical Profile

Myersville

Surface layer:
0 to 5 inches, dark brown gravelly silt loam

Subsoil:
5 to 11 inches, strong brown silt loam
11 to 29 inches, yellowish red silty clay loam
29 to 39 inches, yellowish red silt loam

Substratum:
39 to 48 inches, strong brown silt loam

Bedrock:
48 to 66 inches, strong brown weathered greenstone

Catoctin

Surface layer:
0 to 4 inches, dark brown silt loam

Subsoil:
4 to 15 inches, dark brown channery silty clay loam
15 to 24 inches, brown very channery silt loam

Substratum:
24 to 36 inches, brown and yellowish red very channery silt loam

Bedrock:
36 inches, hard greenstone

34D—Myersville-Catoctin complex, 15 to 35 percent slopes, very stony

Setting

Landform: Mountainsides
Positions on the landform: Sloping and moderately steep summits and side slopes
Shape of areas: Irregular
Size of areas: 100 to 600 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Myersville gravelly silt loam and similar inclusions—45 percent; Catoctin silt loam and similar inclusions—30 percent; contrasting inclusions—25 percent

Contrasting Inclusions

- Areas of soils that have a rubbly surface layer and that are in drainageways
- Areas of soils that have an extremely stony surface layer and that are in positions on the landscape similar to those of the Myersville and Catoctin soils
- Areas of colluvial soils that have a dark surface layer and that are on benches, in coves, and in drainageways

Similar Inclusions

- Areas of soils that have slope of less than 15 percent
- Areas of soils that have a stony surface layer

Typical Profile

Myersville

Surface layer:
0 to 5 inches, dark brown gravelly silt loam

Subsoil:
5 to 11 inches, strong brown silt loam
11 to 29 inches, yellowish red silty clay loam
29 to 39 inches, yellowish red silt loam

Substratum:
39 to 48 inches, strong brown silt loam

Bedrock:
48 to 66 inches, strong brown weathered greenstone

Catoctin

Surface layer:
0 to 4 inches, dark brown silt loam

Subsoil:
4 to 15 inches, dark brown channery silty clay loam
15 to 24 inches, brown very channery silt loam

Substratum:
24 to 36 inches, brown and yellowish red very channery silt loam

Bedrock:
36 inches, hard greenstone

34E—Myersville-Catoctin complex, 35 to 55 percent slopes, very stony

Setting

Landform: Mountainsides
Positions on the landform: Very steep side slopes
Shape of areas: Irregular
Size of areas: 100 to 600 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Myersville gravelly silt loam and similar inclusions—45 percent; Catoctin silt loam and similar inclusions—30 percent; contrasting inclusions—25 percent

Contrasting Inclusions

- Areas of soils that have a rubbly surface layer and that are in drainageways
- Areas of soils that have an extremely stony surface layer and that are in positions on the landscape similar to those of the Myersville and Catoctin soils
- Areas of colluvial soils that have a dark surface layer and that are on benches, in coves, and in drainageways

Similar Inclusions

- Areas of soils that have slope of less than 35 percent

Typical Profile

Myersville

Surface layer:
0 to 5 inches, dark brown gravelly silt loam

Subsoil:
5 to 11 inches, strong brown silt loam
11 to 29 inches, yellowish red silty clay loam
29 to 39 inches, yellowish red silt loam

Substratum:
39 to 48 inches, strong brown silt loam

Bedrock:
48 to 66 inches, strong brown, weathered greenstone

Catoctin

Surface layer:
0 to 4 inches, dark brown silt loam

Subsoil:
4 to 15 inches, dark brown channery silty clay loam
15 to 24 inches, brown very channery silt loam

Substratum:
24 to 36 inches, brown and yellowish red very channery silt loam

Bedrock:
36 inches, hard greenstone

35D—Myersville-Catoctin complex, 15 to 35 percent slopes, extremely stony

Setting

Landform: Mountainsides
Positions on the landform: Sloping and moderately steep side slopes
Shape of areas: Irregular
Size of areas: 200 to 800 acres
Stoniness: Stones 10 to 24 inches in diameter about 1.5 to 3.0 feet apart cover 3 to 15 percent of the surface
Composition of the map unit: Myersville gravelly silt loam and similar inclusions—45 percent; Catoctin silt loam and similar inclusions—40 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained Fauquier soils in positions on the landscape similar to those of the Myersville and Catoctin soils
- Areas of well drained, colluvial soils on benches, in coves, on saddles, and in drainageways

Similar Inclusions

- Areas of soils that do not have a stony surface layer and that are in positions on the landscape similar to those of the Myersville and Catoctin soils
- Areas of soils that have slope of less than 15 percent

Typical Profile

Myersville

Surface layer:
0 to 5 inches, dark brown gravelly silt loam

Subsoil:
5 to 11 inches, strong brown silt loam
11 to 29 inches, yellowish red silty clay loam
29 to 39 inches, yellowish red silt loam

Substratum:
39 to 48 inches, strong brown silt loam

Bedrock:
48 to 66 inches, strong brown weathered greenstone

Catoctin

Surface layer:
0 to 4 inches, dark brown silt loam

Subsoil:
4 to 15 inches, dark brown channery silty clay loam
15 to 24 inches, brown very channery silt loam

Substratum:
24 to 36 inches, brown and yellowish red very channery silt loam

Bedrock:
36 inches, hard greenstone

35E—Myersville-Catoctin complex, 35 to 55 percent slopes, extremely stony

Setting

Landform: Mountainsides
Positions on the landform: Very steep side slopes
Shape of areas: Irregular
Size of areas: 200 to 800 acres
Stoniness: Stones 10 to 24 inches in diameter about 1.5 to 3.0 feet apart cover 3 to 15 percent of the surface
Composition of the map unit: Myersville gravelly silt loam and similar inclusions—45 percent; Catoctin silt loam and similar inclusions—40 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained Fauquier soils in positions on the landscape similar to those of the Myersville and Catoctin soils
- Areas of well drained, colluvial soils on benches, in coves, in saddles, and in drainageways

Similar Inclusions

- Areas of soils that do not have stones on the surface and that are in positions on the landscape similar to those of the Myersville and Catoctin soils

• Areas of soils that have slope of less than 35 percent

Typical Profile

Myersville

Surface layer:
0 to 5 inches, dark brown gravelly silt loam

Subsoil:
5 to 11 inches, strong brown silt loam
11 to 29 inches, yellowish red silty clay loam
29 to 39 inches, yellowish red silt loam

Substratum:
39 to 48 inches, strong brown silt loam

Bedrock:
48 to 66 inches, strong brown, weathered greenstone

Catoctin

Surface layer:
0 to 4 inches, dark brown silt loam

Subsoil:
4 to 15 inches, dark brown channery silty clay loam
15 to 24 inches, brown very channery silt loam

Substratum:
24 to 36 inches, brown and yellowish red very channery silt loam

Bedrock:
36 inches, hard greenstone

36B—Oaklet silt loam, 2 to 7 percent slopes

Setting

Landform: Valleys on uplands
Positions on the landform: Gently sloping summits and shoulders
Shape of areas: Long and winding
Size of areas: 15 to 75 acres
Composition of the map unit: Oaklet silt loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

• Areas of soils that have a cobbly surface layer and a loamy subsoil and that are on saddles and on lower side slopes
• Areas of the well drained, moderately deep Carbo soils in positions on the landscape similar to those of the Myersville and Catoctin soils

Similar Inclusions

• Areas of soils that have a silty clay loam surface layer and that are in positions on the landscape similar to those of the Myersville and Catoctin soils
• Areas of soils that have a gravelly surface layer and that are in positions on the landscape similar to those of the Myersville and Catoctin soils
• Areas of soils that have a red clay subsoil and that are in positions on the landscape similar to those of the Myersville and Catoctin soils

Typical Profile

Surface layer:
0 to 7 inches, brown silt loam

Subsoil:
7 to 12 inches, yellowish brown clay
12 to 30 inches, yellowish brown clay
30 to 54 inches, strong brown clay that has gray iron depletions
54 to 73 inches, strong brown clay

36C—Oaklet silt loam, 7 to 15 percent slopes

Setting

Landform: Valleys on uplands
Positions on the landform: Strongly sloping summits, shoulders, and side slopes
Shape of areas: Long and winding
Size of areas: 15 to 75 acres
Composition of the map unit: Oaklet silt loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

• Areas of soils that have a cobbly surface layer and a loamy subsoil and that are on saddles and on lower side slopes
• Areas of the well drained, moderately deep Carbo soils in positions on the landscape similar to those of the Oaklet soil

Similar Inclusions

• Areas of soils that have a silty clay loam surface layer and that are in positions on the landscape similar to those of the Oaklet soil
• Areas of soils that have a red clay subsoil and that

are in positions on the landscape similar to those of the Oaklet soil

Typical Profile

Surface layer:
0 to 7 inches, brown silt loam

Subsoil:
7 to 12 inches, yellowish brown clay
12 to 30 inches, yellowish brown clay
30 to 54 inches, strong brown clay that has gray iron depletions
54 to 73 inches, strong brown clay

37C—Oaklet-Carbo complex, 2 to 15 percent slopes, very rocky

Setting

Landform: Valleys on uplands
Positions on the landform: Gently sloping and strongly sloping summits, shoulders, and side slopes
Shape of areas: Long and winding
Size of areas: 10 to 100 acres
Rockiness: Rock outcrops are about 30 to 100 feet apart and cover 2 to 10 percent of the surface
Composition of the map unit: Oaklet silt loam and similar inclusions—50 percent; Carbo silt loam and similar inclusions—40 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of shallow, well drained soils in positions on the landscape similar to those of the Oaklet and Carbo soils
- Areas that have slope of more than 15 percent
- Small areas of sinkholes

Similar Inclusions

- Areas of well drained soils that have a red clay subsoil and that are in positions on the landscape similar to those of the Oaklet and Carbo soils
- Areas of well drained soils that have a silty clay loam surface layer and that are in positions on the landscape similar to those of the Oaklet and Carbo soils

Typical Profile

Oaklet

Surface layer:
0 to 7 inches, brown silt loam

Subsoil:
7 to 12 inches, yellowish brown clay
12 to 30 inches, yellowish brown clay
30 to 54 inches, strong brown clay that has gray iron depletions
54 to 73 inches, strong brown clay

Carbo

Surface layer:
0 to 7 inches, brown silt loam

Subsoil:
7 to 19 inches, strong brown clay
19 to 38 inches, yellowish brown clay

Bedrock:
38 inches, hard limestone

37E—Oaklet-Carbo complex, 15 to 35 percent slopes, very rocky

Setting

Landform: Valleys on uplands
Positions on the landform: Moderately steep and steep side slopes
Shape of areas: Long and winding
Size of areas: 10 to 50 acres
Rockiness: Rock outcrops are about 30 to 100 feet apart and cover 2 to 10 percent of the surface
Composition of the map unit: Oaklet silt loam and similar inclusions—55 percent; Carbo silt loam and similar inclusions—40 percent; contrasting inclusions—5 percent

Contrasting Inclusions

- Areas of shallow, well drained soils in positions on the landscape similar to those of the Oaklet and Carbo soils

Similar Inclusions

- Areas of well drained soils that have a silty clay loam surface layer and that are in positions on the landscape similar to those of the Oaklet and Carbo soils
- Areas of well drained soils that have less exposed bedrock on the surface and that are in positions on the landscape similar to those of the Oaklet and Carbo soils
- Areas of soils that have a red clay subsoil and that are in positions on the landscape similar to those of the Oaklet and Carbo soils

Typical Profile

Oaklet

Surface layer:
0 to 7 inches, brown silt loam

Subsoil:
7 to 12 inches, yellowish brown clay
12 to 30 inches, yellowish brown clay
30 to 54 inches, strong brown clay that has gray iron depletions
54 to 73 inches, strong brown clay

Carbo

Surface layer:
0 to 7 inches, brown silt loam

Subsoil:
7 to 19 inches, strong brown clay
19 to 38 inches, yellowish brown clay

Bedrock:
38 inches, hard limestone

38D—Peaks-Edneytown complex, 15 to 35 percent slopes, extremely stony

Setting

Landform: Mountainsides
Positions on the landform: Sloping and moderately steep summits and side slopes
Shape of areas: Irregular
Size of areas: 10 to 500 acres
Stoniness: Stones 10 to 24 inches in diameter about 1.5 to 3.0 feet apart cover 3 to 15 percent of the surface
Composition of the map unit: Peaks channery fine sandy loam and similar inclusions—45 percent; Edneytown loam and similar inclusions—40 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained Thurmont soils in positions on the landscape similar to those of the Peaks and Edneytown soils
- Areas of soils, on summits, where rock outcrops cover most of the surface

Similar Inclusions

- Areas of soils that have a stoneless surface layer and that are in positions on the landscape similar to those of the Peaks and Edneytown soils
- Areas of soils that have a dark surface layer and that are in positions on the landscape similar to those of the Peaks and Edneytown soils

Typical Profile

Peaks

Surface layer:
0 to 4 inches, very dark grayish brown channery fine sandy loam

Subsoil:
4 to 14 inches, yellowish brown channery sandy loam
14 to 31 inches, yellowish brown very channery sandy loam

Substratum:
31 to 38 inches, yellowish brown extremely channery sandy loam

Bedrock:
38 inches, hard granite

Edneytown

Surface layer:
0 to 6 inches, brown loam

Subsurface layer:
6 to 12 inches, yellowish brown loam

Subsoil:
12 to 24 inches, strong brown clay loam
24 to 39 inches, strong brown sandy clay loam

Substratum:
39 to 49 inches, strong brown sandy loam
49 to 62 inches, yellowish brown sandy loam

38E—Peaks-Edneytown complex, 35 to 55 percent slopes, extremely stony

Setting

Landform: Mountainsides
Positions on the landform: Very steep side slopes
Shape of areas: Irregular
Size of areas: 250 to 800 acres
Stoniness: Stones 10 to 24 inches in diameter about 1.5 to 3.0 feet apart cover 3 to 15 percent of the surface
Composition of the map unit: Peaks channery fine sandy loam and similar inclusions—45 percent; Edneytown loam and similar inclusions—40 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained Thurmont soils on lower, colluvial foot slopes
- Areas of soils, on summits, where rock outcrops cover most of the surface

Similar Inclusions

- Areas of soils that do not have a stony surface layer and that are in positions on the landscape similar to those of the Peaks and Edneytown soils
- Areas of soils that have a dark surface layer and that are in positions on the landscape similar to those of the Peaks and Edneytown soils

Typical Profile

Peaks

Surface layer:
0 to 4 inches, very dark grayish brown channery fine sandy loam

Subsoil:
4 to 14 inches, yellowish brown channery sandy loam
14 to 31 inches, yellowish brown very channery sandy loam

Substratum:
31 to 38 inches, yellowish brown extremely channery sandy loam

Bedrock:
38 inches, hard granite

Edneytown

Surface layer:
0 to 6 inches, brown loam

Subsurface layer:
6 to 12 inches, yellowish brown loam

Subsoil:
12 to 24 inches, strong brown clay loam
24 to 39 inches, strong brown sandy clay loam

Substratum:
39 to 49 inches, strong brown sandy loam
49 to 62 inches, yellowish brown sandy loam

38F—Peaks-Edneytown complex, 55 to 70 percent slopes, extremely stony

Setting

Landform: Mountainsides
Positions on the landform: Very steep side slopes
Shape of areas: Irregular
Size of areas: 150 to 500 acres
Stoniness: Stones 10 to 24 inches in diameter about 1.5 to 3.0 feet apart cover 3 to 15 percent of the surface
Composition of the map unit: Peaks channery fine sandy loam and similar inclusions—45 percent; Edneytown loam and similar inclusions—40 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained Thurmont soils on lower, colluvial foot slopes
- Areas of soils, on summits, where rock outcrops cover most of the surface

Similar Inclusions

- Areas of soils that have a stoneless surface layer and that are in positions on the landscape similar to those of the Peaks and Edneytown soils
- Areas of soils that have a dark surface layer and that are in positions on the landscape similar to those of the Peaks and Edneytown soils

Typical Profile

Peaks

Surface layer:
0 to 4 inches, very dark grayish brown channery fine sandy loam

Subsoil:
4 to 14 inches, yellowish brown channery sandy loam
14 to 31 inches, yellowish brown very channery sandy loam

Substratum:
31 to 38 inches, yellowish brown extremely channery sandy loam

Bedrock:
38 inches, hard granite

Edneytown

Surface layer:
0 to 6 inches, brown loam

Subsurface layer:
6 to 12 inches, yellowish brown loam

Subsoil:
12 to 24 inches, strong brown clay loam
24 to 39 inches, strong brown sandy clay loam

Substratum:
39 to 49 inches, strong brown sandy loam
49 to 62 inches, yellowish brown sandy loam

39F—Peaks-Rock outcrop complex, 55 to 70 percent slopes, extremely stony

Setting

Landform: Mountainsides
Positions on the landform: Very steep side slopes
Shape of areas: Irregular
Size of areas: 150 to 500 acres
Stoniness: Stones 10 to 24 inches in diameter about 1.5 to 3.0 feet apart cover 3 to 15 percent of the surface
Composition of the map unit: Peaks channery fine sandy loam and similar inclusions—75 percent; Rock outcrop and similar inclusions—10 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained Edneytown soils in positions on the landscape similar to those of the Peaks soil and Rock outcrop

Similar Inclusions

- Areas of soils that have a stoneless surface layer and that are in positions on the landscape similar to those of the Peaks soil and Rock outcrop
- Areas of soils that have a dark surface layer and that are in positions on the landscape similar to those of the Peaks soil and Rock outcrop

Typical Profile

Peaks

Surface layer:
0 to 4 inches, very dark grayish brown channery fine sandy loam

Subsoil:
4 to 14 inches, yellowish brown channery sandy loam
14 to 31 inches, yellowish brown very channery sandy loam

Substratum:
31 to 38 inches, yellowish brown extremely channery sandy loam

Bedrock:
38 inches, hard granite

40—Pits, bedrock

Setting

Landform: Valleys on uplands and alluvial terraces
Positions on the landform: Gently sloping summits and sloping to steep side slopes
Shape of areas: Variable
Size of areas: 5 to 50 acres
Composition of the map unit: Mainly open excavations and exposed bedrock from mining or quarrying and some pools of water.

Contrasting Inclusions

- Areas of spoil material stockpiled on the surface next to excavations

Typical Profile

Unweathered bedrock

41A—Purdy silt loam, 0 to 3 percent slopes

Setting

Landform: Alluvial terraces
Positions on the landform: Nearly level summits
Shape of areas: Long and winding
Size of areas: 4 to 20 acres
Composition of the map unit: Purdy silt loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of the moderately well drained Zoar soils in positions on the landscape similar to those of the Purdy soil
- Areas of the somewhat poorly drained Tygart soils in positions on the landscape similar to those of the Purdy soil
- Small areas of ponded soils in depressions

Similar Inclusions

- Areas of poorly drained soils that have a gravelly surface layer and that are in positions on the landscape similar to those of the Purdy soil

Typical Profile

Surface layer:
0 to 12 inches, dark grayish brown silt loam that has strong brown iron accumulations

Subsoil:
12 to 29 inches, dark gray clay that has yellowish brown iron accumulations
29 to 40 inches, gray clay that has yellowish brown iron accumulations

Substratum:
40 to 62 inches, gray clay that has yellowish brown iron accumulations

42F—Rock outcrop-Drall-Dekalb complex, 15 to 70 percent slopes

Setting

Landform: Mountainsides
Positions on the landform: Moderately steep to very steep side slopes and shoulders
Shape of areas: Long and narrow
Size of areas: 50 to 200 acres
Rockiness: Rock outcrops 30 to 100 feet apart cover 35 percent of the area
Composition of the map unit: Rock outcrop and similar inclusions—45 percent; Drall channery sandy loam and similar inclusions—20 percent; Dekalb channery sandy loam and similar inclusions—20 percent; contrasting inclusions—15 percent

Contrasting Inclusions

• Areas of soils that have slope of less than 15 percent and few stones on the surface and that are on narrow summits of ridges

Similar Inclusions

• Areas of soils that have an extremely stony surface layer and that are in positions on the landscape similar to those of Rock outcrop and the Drall and Dekalb soils

Typical Profile

Drall

Surface layer:
0 to 4 inches, very dark grayish brown channery sandy loam

Subsurface layer:
4 to 9 inches, light brownish gray channery loamy sand

Subsoil:
9 to 16 inches, yellowish brown very channery loamy sand that has layers of sandy loam on horizontal surfaces of rock fragments
16 to 30 inches, yellowish brown very channery loamy sand

Substratum:
30 to 50 inches, brownish yellow very channery loamy sand

Bedrock:
50 inches, hard sandstone

Dekalb

Surface layer:
0 to 4 inches, very dark gray channery sandy loam

Subsurface layer:
4 to 7 inches, light yellowish brown channery sandy loam

Subsoil:
7 to 32 inches, yellowish brown very channery sandy loam

Substratum:
32 to 38 inches, light yellowish brown very channery sandy loam

Bedrock:
38 inches, hard sandstone

43B—Sherando cobbly fine sandy loam, 2 to 7 percent slopes

Setting

Landform: Alluvial and colluvial terraces and fans
Positions on the landform: Gently sloping summits and shoulders
Shape of areas: Long and winding
Size of areas: 10 to 100 acres
Composition of the map unit: Sherando cobbly fine sandy loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

• Areas of the moderately well drained Cotaco soils that have a clay loam subsoil and that are in positions on the landscape similar to those of the Sherando soil
• Areas of the moderately well drained Monongahela soils that have a fragipan and that are in slightly higher positions on the landscape

Similar Inclusions

• Areas of soils that have large stones on the surface and that are in positions on the landscape similar to those of the Sherando soil

Typical Profile

Surface layer:
0 to 10 inches, brown cobbly fine sandy loam

Subsoil:
10 to 15 inches, yellowish brown cobbly sandy loam

15 to 35 inches, yellowish brown very cobbly sandy loam

Substratum:
35 to 62 inches, yellowish brown very cobbly sandy loam

43C—Sherando cobbly fine sandy loam, 7 to 15 percent slopes

Setting

Landform: Alluvial and colluvial terraces and fans
Positions on the landform: Strongly sloping side slopes
Shape of areas: Long and winding
Size of areas: 10 to 100 acres
Composition of the map unit: Sherando cobbly fine sandy loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of the moderately well drained Cotaco soils that have a clay loam subsoil and that are in positions on the landscape similar to those of the Sherando soil
- Areas of the moderately well drained Monongahela soils that have a fragipan and that are slightly higher on the landscape than the Sherando soil

Similar Inclusions

- Areas of soils that have large stones on the surface and that are in positions on the landscape similar to those of the Sherando soil

Typical Profile

Surface layer:
0 to 10 inches, brown cobbly fine sandy loam

Subsoil:
10 to 15 inches, yellowish brown cobbly sandy loam
15 to 35 inches, yellowish brown very cobbly sandy loam

Substratum:
35 to 62 inches, yellowish brown very cobbly sandy loam

44A—Sindion loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landform: Flood plain
Positions on the landform: Nearly level flood plains
Shape of areas: Irregular and long
Size of areas: 7 to 50 acres
Composition of the map unit: Sindion loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained Huntington soils in positions on the landscape similar to those of the Sindion soil
- Areas of the well drained Combs soils in positions on the landscape similar to those of the Sindion soil
- Areas of poorly drained soils that have a dark surface layer and that are in positions on the landscape similar to those of the Sindion soil

Similar Inclusions

- Areas of soils that have a silt loam surface layer and that are in positions on the landscape similar to those of the Sindion soil
- Areas of soils that have a gravelly surface layer and that are in positions on the landscape similar to those of the Sindion soil
- Areas of soils that have a lighter colored surface layer and that are in positions on the landscape similar to those of the Sindion soil

Typical Profile

Surface layer:
0 to 15 inches, very dark grayish brown loam

Subsoil:
15 to 19 inches, brown loam that has dark yellowish brown iron accumulations
19 to 30 inches, brown loam that has dark grayish brown and strong brown iron depletions and accumulations
30 to 46 inches, dark grayish brown loam that has dark yellowish brown iron accumulations

Substratum:
46 to 62 inches, brown loam that has yellowish brown iron accumulations

45D—Sylvatus-Sylco complex, 15 to 35 percent slopes

Setting

Landform: Mountainsides
Positions on the landform: Moderately steep and steep summits and side slopes

Shape of areas: Irregular
Size of areas: 20 to 150 acres
Composition of the map unit: Sylvatus channery silt loam and similar inclusions—45 percent; Sylco channery silt loam and similar inclusions—40 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of exposed bedrock in positions on the landscape similar to those of the Sylvatus and Sylco soils
- Areas of the deep, well drained Edgemont soils in positions on the landscape similar to those of the Sylvatus and Sylco soils

Similar Inclusions

- Areas of soils that have a very stony surface layer along drainageways

Typical Profile

Sylvatus

Surface layer:
0 to 5 inches, brown channery silt loam

Subsoil:
5 to 17 inches, yellowish brown very channery silt loam

Substratum:
17 to 19 inches, yellowish brown extremely channery silt loam

Bedrock:
19 inches, hard phyllite

Sylco

Surface layer:
0 to 3 inches, dark grayish brown channery silt loam

Subsoil:
3 to 13 inches, yellowish brown channery silt loam
13 to 20 inches, yellowish brown, very channery silt loam
20 to 26 inches, yellowish brown, very channery silt loam

Substratum:
26 to 33 inches, yellowish brown extremely channery silt loam

Bedrock:
33 inches, hard phyllite

45E—Sylvatus-Sylco complex, 35 to 55 percent slopes

Setting

Landform: Mountainsides
Positions on the landform: Very steep side slopes
Shape of areas: Irregular
Size of areas: 20 to 150 acres
Composition of the map unit: Sylvatus channery silt loam and similar inclusions—45 percent; Sylco channery silt loam and similar inclusions—35 percent; contrasting inclusions—20 percent

Contrasting Inclusions

- Areas of exposed bedrock in positions on the landscape similar to those of the Sylvatus and Sylco soils
- Areas of the deep, well drained Edgemont soils in positions on the landscape similar to those of the Sylvatus and Sylco soils

Similar Inclusions

- Areas of soils, along drainageways, that have a very stony surface layer

Typical Profile

Sylvatus

Surface layer:
0 to 5 inches, brown channery silt loam

Subsoil:
5 to 17 inches, yellowish brown very channery silt loam

Substratum:
17 to 19 inches, yellowish brown extremely channery silt loam

Bedrock:
19 inches, hard phyllite

Sylco

Surface layer:
0 to 3 inches, dark grayish brown channery silt loam

Subsoil:
3 to 13 inches, yellowish brown channery silt loam
13 to 20 inches, yellowish brown very channery silt loam
20 to 26 inches, yellowish brown very channery silt loam

Substratum:
26 to 33 inches, yellowish brown extremely channery silt loam

Bedrock:
33 inches, hard phyllite

46B—Thurmont fine sandy loam, 2 to 7 percent slopes

Setting

Landform: Colluvial benches and foot slopes
Positions on the landform: Gently sloping summits and shoulders
Shape of areas: Irregular to blocky
Size of areas: 20 to 150 acres
Composition of the map unit: Thurmont fine sandy loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained Edgemont soils in positions on the landscape similar to those of the Thurmont soil
- Areas of the well drained Braddock soils that have a red clay subsoil and that are in positions on the landscape similar to those of the Thurmont soil
- Areas of moderately well drained soils that have a fragipan and that are in low-lying areas on the landscape

Similar Inclusions

- Areas of soils that have a yellowish brown subsoil and that are in positions on the landscape similar to those of the Thurmont soil
- Soils that have a very stony surface layer and that are on fans below large drainageways

Typical Profile

Surface layer:
0 to 9 inches, brown fine sandy loam

Subsoil:
9 to 15 inches, brown loam
15 to 35 inches, strong brown clay loam
35 to 48 inches, strong brown clay loam

Substratum:
48 to 72 inches, strong brown loam that has gray depletions and red and yellowish brown iron accumulations

46C—Thurmont fine sandy loam, 7 to 15 percent slopes

Setting

Landform: Colluvial benches and foot slopes
Positions on the landform: Strongly sloping shoulders and side slopes
Shape of areas: Irregular to blocky
Size of areas: 10 to 150 acres
Composition of the map unit: Thurmont fine sandy loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained Edgemont soils in higher positions on the landscape
- Areas of the well drained Braddock soils that have a red clay subsoil and that are in positions on the landscape similar to those of the Thurmont soil
- Areas of moderately well drained soils that have a fragipan and that are in low-lying areas on the landscape

Similar Inclusions

- Areas of soils that have a yellowish brown subsoil and that are in positions on the landscape similar to those of the Thurmont soil
- Areas of soils that have a very stony surface layer and that are on fans below large drainageways

Typical Profile

Surface layer:
0 to 9 inches, brown fine sandy loam

Subsoil:
9 to 15 inches, brown loam
15 to 35 inches, strong brown clay loam
35 to 48 inches, strong brown clay loam

Substratum:
48 to 72 inches, strong brown loam that has gray depletions and red and yellowish brown iron accumulations

46D—Thurmont fine sandy loam, 15 to 25 percent slopes

Setting

Landform: Colluvial mountainsides

Positions on the landform: Moderately steep side slopes
Shape of areas: Irregular to blocky
Size of areas: 5 to 50 acres
Composition of the map unit: Thurmont fine sandy loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained Edgemont soils that are higher than the Thurmont soil on the landscape
- Areas of the well drained Edneytown soils that are higher than the Thurmont soil on the landscape

Similar Inclusions

- Areas of soils that have a yellowish brown subsoil and that are in positions on the landscape similar to those of the Thurmont soil
- Areas of soils that have a very stony surface layer and that are in positions on the landscape similar to those of the Thurmont soil

Typical Profile

Surface layer:
0 to 9 inches, brown fine sandy loam

Subsoil:
9 to 15 inches, brown loam
15 to 35 inches, strong brown clay loam
35 to 48 inches, strong brown clay loam

Substratum:
48 to 72 inches, strong brown loam that has gray depletions and red and yellowish brown iron accumulations

47B—Timberville silt loam, 2 to 7 percent slopes, rarely flooded

Setting

Landform: Valleys on uplands
Positions on the landform: Gently sloping, colluvial fans; concave areas at the heads of drainageways; and low areas adjacent to upland drainageways
Shape of areas: Narrow, long, and winding
Size of areas: 7 to 35 acres
Composition of the map unit: Timberville silt loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of soils that are somewhat poorly drained and that are in low-lying positions on the landscape
- Areas of moderately well drained soils that are in positions on the landscape similar to those of the Timberville soil

Similar Inclusions

- Areas of the well drained Lodi soils in slightly higher positions on the landscape
- Areas of soils that have a gravelly surface layer and that are in nearly flat positions adjacent to drainageways

Typical Profile

Surface layer:
0 to 8 inches, dark brown silt loam

Subsoil:
8 to 24 inches, dark yellowish brown gravelly silty clay loam
24 to 42 inches, strong brown and red clay
42 to 68 inches, yellowish brown clay

48A—Tygart silt loam, 0 to 3 percent slopes

Setting

Landform: Alluvial terraces
Positions on the landform: Nearly level summits
Shape of areas: Long and narrow
Size of areas: 3 to 30 acres
Composition of the map unit: Tygart silt loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of the moderately well drained Zoar soils in slightly higher positions on the landscape
- Areas of the moderately well drained Cotaco soils in slightly higher positions on the landscape
- Areas of the poorly drained Purdy soils in positions on the landscape similar to those of the Tygart soil

Similar Inclusions

- Areas of somewhat poorly drained soils that have a silty clay loam surface layer and that are in positions on the landscape similar to those of the Tygart soil
- Areas of somewhat poorly drained soils that have a gravelly surface layer and that are in positions on the landscape similar to those of the Tygart soil

Typical Profile

Surface layer:
0 to 9 inches, dark brown silt loam

Figure 6.—Poultry houses on Unison fine sandy loam, 2 to 7 percent slopes. Page County ranks in the top five counties in poultry production in Virginia.

Subsoil:
9 to 17 inches, brown silty clay that has gray iron depletions
17 to 32 inches, gray clay that has yellowish brown masses of iron accumulations
32 to 45 inches, light grayish brown clay that has yellowish brown masses of iron accumulations

Substratum:
45 to 62 inches, light grayish brown silty clay loam that has yellowish brown masses of iron accumulations

49B—Unison fine sandy loam, 2 to 7 percent slopes

Setting

Landform: Alluvial and colluvial terraces (fig. 6)
Positions on the landform: Gently sloping summits and shoulders
Shape of areas: Irregular and broad
Size of areas: 5 to 150 acres
Composition of the map unit: Unison fine sandy loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained Monongahela soils that have a fragipan and that are in positions on the landscape similar to those of the Unison soil
- Areas of the moderately well drained Cotaco soils in low-lying positions on the landscape

Similar Inclusions

- Areas of the well drained Lodi soils that formed in residuum and that are in positions on the landscape similar to those of the Unison soil
- Areas of the well drained Braddock soils in positions on the landscape similar to those of the Unison soil
- Areas of soils that have a cobbly clay loam surface layer and that are in positions on the landscape similar to those of the Unison soil

Typical Profile

Surface layer:
0 to 10 inches, brown fine sandy loam

Subsoil:
10 to 16 inches, yellowish brown clay loam
16 to 30 inches, strong brown and yellowish red clay loam

30 to 48 inches, strong brown and reddish brown clay
48 to 64 inches, strong brown, dark red, and yellowish brown clay loam

Substratum:
64 to 72 inches, strong brown, dark red, and light gray clay loam

49C—Unison fine sandy loam, 7 to 15 percent slopes

Setting

Landform: Alluvial and colluvial terraces
Positions on the landform: Strongly sloping side slopes and shoulders
Shape of areas: Broad
Size of areas: 5 to 150 acres
Composition of the map unit: Unison fine sandy loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

• Areas of the well drained Monongahela soils that have a fragipan and that are in positions on the landscape similar to those of the Unison soil
• Areas of the moderately well drained Cotaco soils in low-lying positions on the landscape

Similar Inclusions

• Areas of the well drained Lodi soils that formed in residuum and that are in positions on the landscape similar to those of the Unison soil
• Areas of the well drained Braddock soils in positions on the landscape similar to those of the Unison soil
• Areas of soils that have a cobbly clay loam surface layer and that are in positions on the landscape simila to those of the Unison soil

Typical Profile

Surface layer:
0 to 10 inches, brown fine sandy loam

Subsoil:
10 to 16 inches, yellowish brown clay loam
16 to 30 inches, strong brown and yellowish red clay loam
30 to 48 inches, strong brown and reddish brown clay
48 to 64 inches, strong brown, dark red, and yellowish brown clay loam

Substratum:
64 to 72 inches, strong brown, dark red, and light gray clay loam

49D—Unison fine sandy loam, 15 to 25 percent slopes

Setting

Landform: Alluvial and colluvial terraces
Positions on the landform: Moderately steep side slopes and stream terrace escarpments
Shape of areas: Long and winding
Size of areas: 10 to 50 acres
Composition of the map unit: Unison fine sandy loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

• Areas of soils that have slope of more than 25 percent
• Areas of moderately deep, well drained soils in positions on the landscape similar to those of the Unison soil

Similar Inclusions

• Areas of the well drained Lodi soils in positions on the landscape similar to those of the Unison soil
• Areas of the well drained Braddock soils in positions on the landscape similar to those of the Unison soil
• Areas of soils that have a very cobbly surface layer in positions on the landscape similar to those of the Unison soil

Typical Profile

Surface layer:
0 to 10 inches, brown fine sandy loam

Subsoil:
10 to 16 inches, yellowish brown clay loam
16 to 30 inches, strong brown and yellowish red clay loam
30 to 48 inches, strong brown and reddish brown clay
48 to 64 inches, strong brown, dark red, and yellowish brown clay loam

Substratum:
64 to 72 inches, strong brown, dark red, and light gray clay loam

50D—Weikert-Berks complex, 15 to 35 percent slopes

Setting

Landform: Uplands in the Valley and Ridge province
Positions on the landform: Moderately steep and steep

side slopes
Shape of areas: Long and winding
Size of areas: 7 to 100 acres
Composition of the map unit: Weikert channery silt loam and similar inclusions—55 percent; Berks channery silt loam and similar inclusions—35 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of the well drained Laidig soils that have a fragipan in the subsoil and that are in positions on the landscape similar to those of the Weikert and Berks soils
- Areas of soils where stones are on the surface and small areas of rock outcrops along the summits of ridges
- Areas of the well drained Gilpin soils that have fewer coarse fragments in the subsoil and that are in positions on the landscape similar to those of the Weikert and Berks soils

Similar Inclusions

- Areas of soils that have a very stony surface layer and that are in positions on the landscape similar to those of the Weikert and Berks soils

Typical Profile

Weikert

Surface layer:
0 to 3 inches, dark brown channery silt loam

Subsoil:
3 to 14 inches, yellowish brown very channery silt loam

Substratum:
14 to 18 inches, yellowish brown extremely channery silt loam

Bedrock:
18 inches, fractured shale

Berks

Surface layer:
0 to 2 inches, dark grayish brown channery silt loam

Subsoil:
2 to 12 inches, yellowish brown channery silt loam
12 to 24 inches, yellowish brown very channery silt loam

Substratum:
24 to 30 inches, yellowish brown very channery silt loam

Bedrock:
30 inches, fractured shale

50E—Weikert-Berks complex, 35 to 55 percent slopes

Setting

Landform: Uplands in the Valley and Ridge province
Positions on the landform: Very steep side slopes
Shape of areas: Long and winding
Size of areas: 7 to 100 acres
Composition of the map unit: Weikert channery silt loam and similar inclusions—60 percent; Berks channery silt loam and similar inclusions—35 percent; contrasting inclusions—5 percent

Contrasting Inclusions

- Areas of the well drained Laidig soils that have a fragipan in the subsoil and that are in lower positions on the landscape
- Areas where stones are on the surface and small areas of rock outcrops along the summits of ridges
- Areas of Gilpin soils that have fewer coarse fragments in the subsoil and that are in positions on the landscape similar to those of the Weikert and Berks soils

Similar Inclusions

- Soils that have a very stony surface layer and that are in positions on the landscape similar to those of the Weikert and Berks soils

Typical Profile

Weikert

Surface layer:
0 to 3 inches, dark brown channery silt loam

Subsoil:
3 to 14 inches, yellowish brown very channery silt loam

Substratum:
14 to 18 inches, yellowish brown very channery silt loam

Bedrock:
18 inches, fractured shale

Berks

Surface layer:
0 to 2 inches, dark grayish brown channery silt loam

Subsoil:
2 to 12 inches, yellowish brown channery silt loam
12 to 24 inches, yellowish brown very channery silt loam

Substratum:
24 to 30 inches, yellowish brown very channery silt loam

Bedrock:
30 inches, fractured shale

51F—Weikert channery silt loam, 55 to 70 percent slopes

Setting

Landform: Uplands in the Valley and Ridge province
Positions on the landform: Very steep side slopes
Shape of areas: Long and winding
Size of areas: 7 to 100 acres
Composition of the map unit: Weikert channery silt loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of the deep, well drained Berks soils in positions on the landscape similar to those of the Weikert soil
- Small areas of rock outcrop in positions on the landscape similar to those of the Weikert soil

Similar Inclusions

- Areas of soils that have an extremely stony surface layer and that are in drainageways
- Areas of soils that have a very channery surface layer and that are in positions on the landscape similar to those of the Weikert soil

Typical Profile

Surface layer:
0 to 3 inches, dark brown channery silt loam

Subsoil:
3 to 14 inches, yellowish brown very channery silt loam

Substratum:
14 to 18 inches, yellowish brown extremely channery silt loam

Bedrock:
18 inches, fractured shale

52B—Wheeling fine sandy loam, 2 to 7 percent slopes

Setting

Landform: Low, alluvial terraces
Positions on the landform: Gently sloping summits and shoulders
Shape of areas: Elongated
Size of areas: 7 to 30 acres
Composition of the map unit: Wheeling fine sandy loam and similar inclusions—90 percent; contrasting inclusions—10 percent

Contrasting Inclusions

- Areas of soils that have slope of more than 7 percent and that are on slopes between terraces and flood plains
- Areas of the moderately well drained Monongahela soils that have a fragipan and that are in positions on the landscape similar to those of the Wheeling soil

Similar Inclusions

- Areas of soils that have a thick, dark surface layer and that are in positions on the landscape similar to those of the Wheeling soil
- Areas of moderately well drained soils in small depressions on the landscape
- Areas of soils that have a gravelly surface layer and that are near uplands

Typical Profile

Surface layer:
0 to 7 inches, dark yellowish brown fine sandy loam

Subsoil:
7 to 15 inches, strong brown loam
15 to 45 inches, strong brown loam
45 to 72 inches, dark brown fine sandy loam

53D—Zepp channery sandy loam, 15 to 35 percent slopes, very stony

Setting

Landform: Colluvial mountainsides
Positions on the landform: Moderately steep and steep side slopes and benches
Shape of areas: Long and narrow
Size of areas: 10 to 200 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Zepp channery sandy loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the well drained, moderately deep Dekalb soils in higher positions on the landscape

• Areas of soils that have slope of more than 35 percent

Similar Inclusions

• Areas of the well drained Jefferson soils that have a fine textured subsoil and that are in positions on the landscape similar to those of the Zepp soil
• Areas of soils that have slope of less than 15 percent

Typical Profile

Surface layer:
0 to 4 inches, dark grayish brown channery sandy loam

Subsoil:
4 to 9 inches, yellowish brown channery sandy loam
9 to 19 inches, yellowish brown channery loam
19 to 29 inches, strong brown channery loam
29 to 44 inches, strong brown channery loam
44 to 56 inches, yellowish red and reddish yellow channery clay loam

Substratum:
56 to 72 inches, yellowish red very channery clay loam

53E—Zepp channery sandy loam, 35 to 55 percent slopes, very stony

Setting

Landform: Colluvial mountainsides
Positions on the landform: Very steep side slopes
Shape of areas: Long and narrow
Size of areas: 10 to 200 acres
Stoniness: Stones 10 to 24 inches in diameter about 3 to 24 feet apart cover 0.1 to 3 percent of the surface
Composition of the map unit: Zepp channery sandy loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

• Areas of the well drained, moderately deep Dekalb soils in higher positions on the landscape
• Areas of soils that have slope of more than 55 percent

Similar Inclusions

• Areas of the well drained Jefferson soils that have a fine textured subsoil and that are in positions on the landscape similar to those of the Zepp soil
• Areas of soils that have slope of less than 35 percent

Typical Profile

Surface layer:
0 to 4 inches, dark grayish brown channery sandy loam

Subsoil:
4 to 9 inches, yellowish brown channery sandy loam
9 to 19 inches, yellowish brown channery loam
19 to 29 inches, strong brown channery loam
29 to 44 inches, strong brown channery loam
44 to 56 inches, yellowish red and reddish yellowish channery clay loam

Substratum:
56 to 72 inches, yellowish red very channery clay loam

54E—Zepp channery sandy loam, 35 to 55 percent slopes, extremely stony

Setting

Landform: Colluvial mountainsides
Positions on the landform: Very steep side slopes
Shape of areas: Long and narrow
Size of areas: 50 to 200 acres
Stoniness: Stones 10 to 24 inches in diameter about 1.5 to 3 feet apart cover 3 to 15 percent of the surface
Composition of the map unit: Zepp channery sandy loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

• Areas of the well drained, moderately deep Dekalb soils in higher positions on the landscape
• Areas of soils that have slope of more than 55 percent

Similar Inclusions

• Areas of the well drained Jefferson soils that have a fine textured subsoil and that are in positions on the landscape similar to those of the Zepp soil
• Areas of soils that have slope of less than 35 percent

Typical Profile

Surface layer:
0 to 4 inches, dark grayish brown channery sandy loam

Subsoil:
4 to 9 inches, yellowish brown channery sandy loam
9 to 19 inches, yellowish brown channery loam

19 to 29 inches, strong brown channery loam
29 to 44 inches, strong brown channery loam
44 to 56 inches, yellowish red and reddish yellowish channery clay loam

Substratum:
56 to 72 inches, yellowish red very channery clay loam

55A—Zoar silt loam, 0 to 3 percent slopes

Setting

Landform: Alluvial terraces
Positions on the landform: Concave, nearly level summits, shoulders, and depressions
Shape of areas: Irregular
Size of areas: 7 to 20 acres
Composition of the map unit: Zoar silt loam and similar inclusions—85 percent; contrasting inclusions—15 percent

Contrasting Inclusions

- Areas of the moderately well drained Monongahela soils that are slightly higher than the Zoar soil on the landscape
- Areas of the somewhat poorly drained Tygart soils in the lowest positions on the landscape

Similar Inclusions

- Areas of the moderately well drained Cotaco soils in slightly higher positions on the landscape

Typical Profile

Surface layer:
0 to 10 inches, brown silt loam

Subsoil:
10 to 21 inches, yellowish brown silty clay loam
21 to 36 inches, yellowish brown silty clay that has light olive brown and brown masses of iron accumulations and grayish brown iron depletions
36 to 50 inches, yellowish brown silty clay that has gray iron depletions

Substratum:
50 to 67 inches, dark yellowish brown silty clay loam that has gray iron depletions

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forest land, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. The slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 22,433 acres in the survey area, or nearly 12 percent of the total acreage, meets the soil requirements for prime farmland. Most areas of prime farmland are in the center of the county. They run north to south between the Blue Ridge and Massanutten Mountains.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed at the end of this section. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 5. The location is shown on the detailed soil maps at the back of this publication. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

The map units that meet the requirements for prime farmland are:

3B	Braddock loam, 2 to 7 percent slopes
4B	Braddock cobbly loam, 2 to 7 percent slopes
10A	Combs fine sandy loam, 0 to 3 percent slopes, occasionally flooded
11B	Cotaco loam, 2 to 7 percent slopes
16B	Dyke loam, 2 to 7 percent slopes
20B	Fauquier silt loam, 2 to 7 percent slopes
24A	Huntington loam, 0 to 3 percent slopes, occasionally flooded
29B	Lodi silt loam, 2 to 7 percent slopes
33B	Monongahela loam, 2 to 7 percent slopes
36B	Oaklet silt loam, 2 to 7 percent slopes
44A	Sindion loam, 0 to 3 percent slopes, occasionally flooded
46B	Thurmont fine sandy loam, 2 to 7 percent slopes
47B	Timberville silt loam, 2 to 7 percent slopes, rarely flooded
49B	Unison fine sandy loam, 2 to 7 percent slopes
52B	Wheeling fine sandy loam, 2 to 7 percent slopes
55A	Zoar silt loam, 0 to 3 percent slopes

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

This section suggests general management needed for crops and pasture. It estimates yields of the main crops and pasture plants for each soil. And, it explains the system of land capability classification used by the Natural Resources Conservation Service.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Cropland in Page County took in about 37,300 acres, according to the 1993 Virginia Agricultural Statistics Report. It consisted mainly of such hay crops as alfalfa, tall fescue, and orchardgrass. Row crops, mainly corn, corn silage, wheat, and barley, covered about 6,300 acres.

The acreage in cultivated crops in the county has gradually been decreasing. The acreage in pasture has been increasing as beef cattle have been increasing in number. Some parcels formerly used as cropland and pasture have been converted to community development.

Soil erosion is the major management concern on most of the cropland in Page County. Except for the soils on flood plains and some low stream terraces, most soils in the county have slopes of more than 2 percent. On these soils, the hazard of erosion is moderate to severe.

Erosion of the surface layer reduces the organic matter content, water-holding capacity, and fertility of the soil. It lowers potential productivity of the soil and makes seedbed preparation difficult. Erosion also results in sedimentation of streams and lakes and lowers the quality of water for fish and wildlife.

Erosion is especially damaging on soils that have a clayey subsoil and on soils where bedrock is close to the surface. For example, some areas of Braddock, Fauquier, and Lodi soils have lost the surface layer to erosion. The exposed clayey subsoil is less productive than the original surface layer and is more difficult to till. On Catoctin, Massanutten, and Peaks soils, erosion not only exposes a less productive layer of soil. It also decreases the amount of productive soil material between the surface and bedrock.

Erosion control practices provide a protective surface cover, reduce runoff, and increase infiltration.

For example, a cropping system that keeps plant cover on the soil for extended periods minimizes soil losses. Thus, it preserves the productive capacity of the soil. A conservation cropping system can consist of hay or pasture in a rotation with row crops. It will reduce erosion and increase the organic matter content of the surface layer. It also will increase fertility and available water capacity and will improve soil tilth.

Laying sod in waterways is a conservation practice called grassed waterways. Grassed waterways and contour tillage are common erosion control practices in Page County. They are suited in most areas of Braddock, Carbo, Fauquier, Lodi, and Unison soils.

Conservation tillage, winter cover crops, and crop residue left on the surface reduce runoff and increase infiltration. These practices are suitable for most of the soils in the county. But, they are more difficult to use in severely eroded areas than in uneroded or slightly eroded areas. On most soils in the county, fertility is low. Most unlimed areas are strongly acid or very strongly acid. Thus, applications of lime and fertilizer are needed for crops on most soils.

Such field crops as corn, wheat, rye, barley, and oats are suited to the soils and the climate of the survey area. Conservation cropping systems that include grasses and legumes in rotations with these crops help to maintain good tilth and fertility.

Pastures consist of tall fescue, orchardgrass, and clover. On pasture, the major management concerns are preventing overgrazing and maintaining mixed grasses and legumes. The common pasture management practices are weed control, proper stocking rates, rotation grazing, restricted grazing when the soils are wet, and liming and fertilizing. The major hay plants are Kentucky 31 fescue, orchardgrass, ryegrass, red clover, and alfalfa.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of each map unit also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 6 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland and for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w, s,* or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIe-4 and IIIe-6. The capability class and subclass for the map units in this survey area are given in table 6, "Land Capability Classes and Yields per Acre of Crops and Pasture."

Woodland Management and Productivity

Page County was covered with virgin timber, but most of the cultivable land has been cleared. The rest of the woodland is generally too steep, too stony, or too wet for farming. It consists of second growth hardwoods, shortleaf pine, and Virginia pine.

About 70 percent of the county is woodland, mainly on mountains. Of the acreage in woodland, the George Washington National Forest makes up about 13 percent. The Shenandoah National Park makes up about 19 percent. The rest is mostly under private ownership.

The most common tree species in the Blue Ridge Mountains are red oak, chestnut oak, black oak, maple, hickory, poplar, black birch, hemlock, and eastern white pine. The major tree species in the Ridge and Valley province are red oak, chestnut oak, black walnut, hickory, yellow-poplar, and Virginia pine.

Timber management practices include thinning, clearcutting, controlled burning, and reforestation. During timber harvest and after reseeding, erosion is a major woodland management concern.

Table 7 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol,* a number, indicates the potential productivity of the soils for an indicator tree species. The number indicates the volume, in cubic meters per hectare per year, which the indicator species can produce in a pure stand under natural conditions. The number 1 indicates low potential productivity; 2 or 3, moderate; 4 or 5, moderately high; 6 to 8, high; 9 to 11, very high; and 12 to 39, extremely high. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *R* indicates steep slopes; *X,* stoniness or rockiness; *W,* excess water in or on the soil; *T,* toxic substances in the soil; *D,* restricted rooting depth; *C,* clay in the upper part of the soil; *S,* sandy texture; *F,* a high content of rock fragments in the soil; *L,* low strength; and *N,* snowpack. The letter *A* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: R, X, W, T, D, C, S, F, L, and N.

In the table, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Erosion hazard is the probability that damage will occur as a result of site preparation and cutting where the soil is exposed along roads, skid trails, and fire lanes and in log-handling areas. Forests that have been burned or overgrazed are also subject to erosion. Ratings of the erosion hazard are based on the percent of the slope. A rating of *slight* indicates that no particular prevention measures are needed under ordinary conditions. A rating of

moderate indicates that erosion-control measures are needed in certain silvicultural activities. A rating of *severe* indicates that special precautions are needed to control erosion in most silvicultural activities.

Equipment limitation reflects the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. The chief characteristics and conditions considered in the ratings are slope, stones on the surface, rock outcrops, soil wetness, and texture of the surface layer. A rating of *slight* indicates that under normal conditions the kind of equipment and season of use are not significantly restricted by soil factors. Soil wetness can restrict equipment use, but the wet period does not exceed 1 month. A rating of *moderate* indicates that equipment use is moderately restricted because of one or more soil factors. If the soil is wet, the wetness restricts equipment use for a period of 1 to 3 months. A rating of *severe* indicates that equipment use is severely restricted either as to the kind of equipment that can be used or the season of use. If the soil is wet, the wetness restricts equipment use for more than 3 months.

Seedling mortality refers to the death of naturally occurring or planted tree seedlings, as influenced by the kinds of soil, soil wetness, or topographic conditions. The factors used in rating the soils for seedling mortality are texture of the surface layer, depth to a seasonal high water table and the length of the period when the water table is high, rock fragments in the surface layer, effective rooting depth, and slope aspect. A rating of *slight* indicates that seedling mortality is not likely to be a problem under normal conditions. Expected mortality is less than 25 percent. A rating of *moderate* indicates that some problems from seedling mortality can be expected. Extra precautions are advisable. Expected mortality is 25 to 50 percent. A rating of *severe* indicates that seedling mortality is a serious problem. Extra precautions are important. Replanting may be necessary. Expected mortality is more than 50 percent.

Windthrow hazard is the likelihood that trees will be uprooted by the wind because the soil is not deep enough for adequate root anchorage. The main restrictions that affect rooting are a seasonal high water table and the depth to bedrock, a fragipan, or other limiting layers. A rating of *slight* indicates that under normal conditions no trees are blown down by the wind. Strong winds may damage trees, but they do not uproot them. A rating of *moderate* indicates that some trees can be blown down during periods when the soil is wet and winds are moderate or strong. A rating of *severe* indicates that many trees can be blown down during these periods.

Plant competition ratings indicate the degree to which undesirable species are expected to invade and grow when openings are made in the tree canopy. The main factors that affect plant competition are depth to the water table and the available water capacity. A rating of *slight* indicates that competition from undesirable plants is not likely to prevent natural regeneration or suppress the more desirable species. Planted seedlings can become established without undue competition. A rating of *moderate* indicates that competition may delay the establishment of desirable species. Competition may hamper stand development, but it will not prevent the eventual development of fully stocked stands. A rating of *severe* indicates that competition can be expected to prevent regeneration unless precautionary measures are applied.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index* and as a *volume* number. The site index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

The *volume*, a number, is the yield likely to be produced by the most important trees. This number, expressed as cubic feet per acre per year, indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

The first species listed under *common trees* for a soil is the indicator species for that soil. It generally is the most common species on the soil and is the one that determines the ordination class.

Trees to plant are those that are suitable for commercial wood production.

Recreation

The South Fork of the Shenandoah River provides many opportunities for recreation. They include boating, fishing, swimming, and hunting. Several public boat landings are located along the river.

The uplands and mountainous areas provide hunting, fishing, camping, hiking, and sightseeing. George Washington National Forest, Shenandoah National Park, and Skyline Drive also provide opportunities for recreation. The Appalachian Trail traverses Shenandoah National Park. Its main uses are hiking and backpacking.

Outdoor recreation programs are available for both youth and adults in Luray and elsewhere in Page County. These include baseball, soccer, and tennis. There are also facilities for golf and swimming.

The soils of the survey area are rated in table 8 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In the table, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or a combination of these measures.

The information in the table can be supplemented by other information in this survey, for example, interpretations for dwellings without basements and for local roads and streets in tables 10 and 11, interpretations for lawns and landscaping in tables 10 and 12, and interpretations for septic tank absorption fields in tables 13 and 14.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

The woodland, cropland, and wetlands of Page County support varied populations of fish and wildlife. Large wooded tracts are found throughout the county. These areas and wooded margins of fields support large numbers of white-tailed deer, wild turkey, black bear, red and gray foxes, and squirrel. The cropland throughout the county provides habitat for cottontail, groundhog, quail, mourning dove, and many other bird species. Wetlands along rivers and streams support beaver, muskrat, turtles, and several species of waterfowl.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 9, the soils in the survey area are rated according to their potential for providing habitat for

various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

Elements of Wildlife Habitat

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, timothy, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggartick, quackgrass, and ragweed.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, birch, cherry, maple, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are chinquapin, serviceberry, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, yew, cedar, and hemlock.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are switchgrass, joe-pye-weed, broadleaf cattail, gama grass, American bur-reed, nodding beggartick, and broadleaf arrowhead.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, swamps, and ponds.

Habitat for Various Kinds of Wildlife

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, meadow vole, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, frogs, and tree swallow.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 10 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed

performance of the soils. A high water table, flooding, shrinking and swelling, and organic layers can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, slope, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Table 11 gives general corrective measures for limitations for dwellings with or without basements. Table 12 gives general corrective measures for limitations for lawns and landscaping.

Sanitary Facilities

Table 13 shows the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

The table also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

The table gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high

enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of groundwater pollution. Ease of excavation and revegetation should be considered.

The ratings in the table are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to wind erosion.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Table 14 gives generalized corrective measures for limitations for septic tank absorption fields.

Construction Materials

Table 15 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet and have a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In the table, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 16 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features

include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 17 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading "Soil Series and Their Morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as about 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (*1*).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 17.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by

converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Table 18 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3-bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on the basis of measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture

content is increased from air-dry to field capacity. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; *high*, 6 to 9 percent; and *very high*, more than 9 percent.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.64. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In the table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 19 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to two hydrologic groups in the table, the first letter is for drained areas and the second is for undrained areas.

Flooding, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

The table gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of flooding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of flooding is more than 50 percent in any year). *Common* is used when the occasional and frequent classes are grouped for certain purposes. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 days to 1 month, and *very long* if more than 1 month. Probable dates are expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering

surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The estimates are based mainly on observations of the water table at selected sites and on the evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. Indicated in the table are the depth to the seasonal high water table; the kind of water table—that is, perched, apparent, or artesian; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in the table.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone. An *artesian* water table is under hydrostatic head, generally below an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole.

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. "More than 6.0" indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Potential frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage mainly to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low, moderate,* or *high.* It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (*3*). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 20 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udult (*Ud,* meaning humid, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludults (*Hapl*, meaning minimal horizonation, plus *udult*, the suborder of the Ultisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, nonacid, mesic Typic Hapludults.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (*5*). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (*3*) and in "Keys to Soil Taxonomy" (*4*). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Berks Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid

Physiography: Valley and Ridge province
Parent material: Residuum derived from shale and sandstone
Slope range: 7 to 55 percent

Associated Soils

• Jefferson soils are well drained, have bedrock at a depth of a more than 60 inches, have fewer rock fragments in the subsoil than Berks soils, and are on colluvial foot slopes
• Laidig soils are well drained, have a fragipan, are more than 60 inches deep over bedrock, and are on colluvial foot slopes
• Weikert soils are well drained, have bedrock at a depth of 10 to 20 inches, and are in positions on the landscape similar to those of Berks soils

Typical Pedon

Berks channery silt loam, in an area of Weikert-Berks complex, 35 to 55 percent slopes, 2.7 miles northeast (40 degrees) of the intersection of VA 684 and VA 717, and 2.5 miles northwest (350 degrees) of the intersection of VA 663 and U.S. 340, in George Washington National Forest:

Oi—1 inch to 0; hardwood leaf litter, mainly from oaks.
A—0 to 2 inches; dark grayish brown (10YR 4/2) channery silt loam; weak fine granular structure; friable; many fine and few coarse roots; 20 percent rock fragments; strongly acid; abrupt smooth boundary.
Bw1—2 to 12 inches; yellowish brown (10YR 5/4) channery silt loam; weak fine subangular blocky structure; friable; common fine roots; 30 percent rock fragments; strongly acid; clear smooth boundary.
Bw2—12 to 24 inches; yellowish brown (10YR 5/4) very channery silt loam; weak fine subangular blocky structure; friable; common fine roots; 45 percent rock fragments; strongly acid; abrupt wavy boundary.
C—24 to 30 inches; yellowish brown (10YR 5/4) very channery silt loam; massive; friable; few fine roots; 55 percent rock fragments; strongly acid.
R—30 inches; fractured shale.

Range in Characteristics

Thickness of the solum: 12 to 40 inches
Depth to hard bedrock: 20 to 40 inches
Rock fragments: 15 to 35 percent in the A horizon, 15 to 75 percent in individual subhorizons of the B horizon, and from 35 to 90 percent in the C horizon
Reaction: Extremely acid to slightly acid

A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture—silt loam in the fine earth fraction

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—silt loam in the fine earth fraction

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—2 to 8
Texture—silt loam in the fine earth fraction

Biltmore Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Rapid
Physiography: Flood plains of major streams in the Valley and Ridge province
Parent material: Alluvium from sandstone, shale, and limestone
Slope range: 0 to 4 percent

Associated Soils

• Combs soils are well drained, have a mollic epipedon, are subject to occasional flooding, and are in positions on the landscape similar to those of Biltmore soils
• Huntington soils are well drained, have a mollic epipedon, are subject to occasional flooding, and are in positions on the landscape similar to those of Biltmore soils

Typical Pedon

Biltmore fine sandy loam, in an area of Biltmore fine sandy loam, 0 to 4 percent slopes, occasionally flooded, about 1.8 miles south-southwest (250 degrees) of junction of VA 650 and U.S. 340, about 1.6 miles northeast (30 degrees) of junction of U.S. 340 and VA 615:

A—0 to 7 inches; dark brown (10YR 4/3) fine sandy loam; single grained; loose; many fine and medium roots; slightly acid; abrupt smooth boundary.
C1—7 to 40 inches; dark yellowish brown (10YR 4/4) loamy fine sand; single grained; loose; common fine roots; slightly acid; diffuse smooth boundary.
C2—40 to 72 inches; dark yellowish brown (10YR 4/4)

loamy sand; single grained; loose; few fine roots; slightly acid.

Range in Characteristics

Sandy sediments: 40 to 60 inches
Depth to hard bedrock: More than 60 inches
Rock fragments: 0 to 10 percent in the upper 40 inches; gravel and cobble beds in many pedons between depths of 40 and 80 inches
Reaction: Strongly acid to mildly alkaline

A horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—fine sandy loam

B horizon (where it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loamy sand or loamy fine sand

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture—loamy sand

Braddock Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiography: Valley and Ridge province
Parent material: Alluvium or colluvium derived from crystalline rocks
Slope range: 2 to 25 percent

Associated Soils

• Edgemont soils are well drained, formed in residuum derived from quartzite, and have less clay in the subsoil than Braddock soils
• Monongahela soils are well drained, have a fragipan at a depth of 18 to 30 inches, and are slightly higher on the landscape than Braddock soils
• Unison soils are well drained, have a yellower subsoil, and are in positions on the landscape similar to those of Braddock soils

Typical Pedon

Braddock loam, 7 to 15 percent slopes, 6 miles southeast (144 degrees) of intersection of U.S. 340 and VA 611, northeast (44 degrees) of intersection of VA 611, N&W Railroad, and Moody Creek:

Ap—0 to 7 inches; brown (7.5YR 5/4) loam; weak fine granular structure; friable; common fine roots; 2 percent gravel; strongly acid; abrupt smooth boundary.
Bt1—7 to 14 inches; red (2.5YR 5/6) clay loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; few distinct clay films on faces of peds; few fine roots; 2 percent gravel; strongly acid; clear wavy boundary.
Bt2—14 to 34 inches; dark red (2.5YR 3/6) clay; moderate medium angular blocky structure; firm, sticky and slightly plastic; thick continuous clay films on faces of peds; few very fine roots; 4 percent gravel; strongly acid; gradual wavy boundary.
Bt3—34 to 43 inches; red (2.5YR 4/6) and brownish yellow (10YR 6/8) clay; moderate fine and medium angular blocky structure; firm; 10 percent cobbles; strongly acid; gradual wavy boundary.
C—43 to 62 inches; red (2.5YR 4/6) and brownish yellow (10YR 6/8) cobbly loam; massive; friable; 17 percent cobbles; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to hard bedrock: More than 60 inches
Rock fragments: 0 to 35 percent in the A horizon; 0 to 60 percent in the Bt and C horizons
Reaction: Unlimed areas are extremely acid to strongly acid

Ap horizon:
Hue—7.5YR or 10YR
Value—2 to 5
Chroma—1 to 6
Texture—loam in the fine earth fraction

Bt horizon:
Hue—10R or 2.5YR
Value—3 to 5
Chroma—6 to 8
Texture—clay loam or clay in the fine earth fraction

C horizon:
Hue—10R to 7.5YR
Value—3 to 8
Chroma—1 to 8
Texture—loamy to clayey in the fine earth fraction

Carbo Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow

Physiography: Valley and Ridge province
Parent material: Residuum derived from limestone
Slope range: 2 to 35 percent

Associated Soils

- Lodi soils are very deep and well drained and are in slightly higher positions on the landscape than Carbo soils
- Oaklet soils are very deep and well drained and are in positions on the landscape similar to those of Carbo soils
- Timberville soils are very deep and well drained and are in depressions, in drainageways, and at the heads of drainageways

Typical Pedon

Carbo silt loam, in an area of Oaklet-Carbo complex, 2 to 15 percent slopes, very rocky, 0.4 mile northwest (310 degrees) of intersection of VA 646 and VA 616, about 1 mile south (160 degrees) of intersection of U.S. 211 and VA 646:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine roots; few fine pores; 1 percent iron oxide concretions; slightly acid; abrupt smooth boundary.
Bt1—7 to 19 inches; strong brown (7.5YR 5/8) clay; moderate fine and medium subangular blocky structure; firm, sticky and plastic; common fine roots; few fine pores; many continuous clay films on faces of peds; 5 percent iron concretions; few black (N 2/0) manganese stains; moderately acid; clear smooth boundary.
Bt2—19 to 38 inches; yellowish brown (10YR 5/6) clay; weak coarse prismatic structure parting to moderate fine and medium subangular blocky structure; firm, sticky and very plastic; few very fine roots; few fine pores; many continuous clay films on faces of peds; 5 percent iron oxide concretions; common black (N 2/0) manganese oxide stains; mildly alkaline; abrupt smooth boundary.
R—38 inches; hard limestone.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to hard bedrock: 20 to 40 inches
Rock fragments: 0 to 10 percent in the A horizon and 0 to 15 percent in the B and C horizons
Iron concretions: 0 to 10 percent throughout the solum
Reaction: Very strongly acid to neutral in the A horizon and moderately acid to mildly alkaline in the B and C horizons

A or Ap horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 to 6
Texture—silt loam

Bt horizon:
Hue—5YR to 10YR (5YR restricted to the lower part of the Bt horizon)
Value—4 to 6
Chroma—4 to 8
Texture—clay

C horizon (where it occurs):
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—4 to 8
Texture—clay or silty clay

Catoctin Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid
Physiography: Blue Ridge Mountains
Parent material: Residuum derived from greenstone
Slope range: 2 to 70 percent

Associated Soils

- Dyke soils are well drained, have a red clayey subsoil, and are in lower, colluvial positions on the landscape
- Fauquier soils are well drained, have an argillic horizon, and are on narrow, convex summits and shoulders
- Myersville soils are well drained, have an argillic horizon, and are on ridges and steep side slopes

Typical Pedon

Catoctin silt loam, 7 to 15 percent slopes, 1 mile northeast (45 degrees) of intersection of VA 759 and VA 607, about 3 miles northeast (45 degrees) of intersection of VA 606 and VA 759:

A—0 to 4 inches; dark brown (10YR 3/3) silt loam; weak fine granular structure; friable; common fine roots; 10 percent rock fragments; strongly acid; abrupt smooth boundary.
Bw1—4 to 15 inches; dark brown (7.5YR 4/4) channery silty clay loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; common fine roots; 35 percent rock fragments; moderately acid; gradual wavy boundary.

Bw2—15 to 24 inches; brown (7.5YR 5/4) very channery silt loam; weak fine subangular blocky structure; thin lenses and pockets of silty clay loam that has a few clay films on faces of peds between partly weathered fragments of greenstone; friable, slightly sticky and slightly plastic; few fine roots; 45 percent rock fragments; moderately acid; gradual smooth boundary.
C—24 to 36 inches; brown (7.5YR 5/4) and yellowish red (5YR 5/8) very channery silt loam; massive; friable; few fine roots; 55 percent rock fragments; moderately acid; abrupt smooth boundary.
R—36 inches; hard greenstone.

Range in Characteristics

Thickness of the solum: 15 to 30 inches
Depth to hard bedrock: 20 to 40 inches
Rock fragments: 5 to 10 percent in the A horizon, 15 to 55 percent in the B horizon, and 35 to 80 percent in the C horizon
Reaction: Strongly acid to slightly acid in the surface layer and the subsoil and moderately acid to neutral in the substratum

A horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 4
Texture—silt loam

Bw horizon:
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture—silt loam or silty clay loam in the fine earth fraction

C horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture—silt loam or loam in the fine earth fraction

Chilhowie Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Slow
Physiography: Valley and Ridge province
Parent material: Residuum derived from interbedded shale and limestone
Slope range: 7 to 25 percent

Associated Soils

- Carbo soils are well drained, have a thicker solum than Chilhowie soils, and are in positions on the landscape similar to those of Chilhowie soils
- Edom soils are well drained, have a thicker solum than Chilhowie soils, and are in positions on the landscape similar to those of Chilhowie soils
- Oaklet soils are well drained, are deeper to bedrock, and are in positions on the landscape similar to those of Chilhowie soils

Typical Pedon

Chilhowie silty clay loam, 15 to 25 percent slopes, 0.2 mile northeast of intersection of U.S. 340 and Battle Creek Road, and 0.5 mile northeast of intersection of U.S. 340 and VA 615:

Ap—0 to 8 inches; brown (7.5YR 4/4) silty clay loam; moderate medium granular structure; firm, slightly sticky and slightly plastic; common fine roots; common fine and medium pores; 10 percent shale fragments; slightly acid; abrupt smooth boundary.
Bt1—8 to 16 inches; reddish yellow (7.5YR 6/6) clay; moderate medium subangular blocky structure; firm, sticky and plastic; few fine roots; common fine pores; many distinct clay films on faces of peds; slightly acid; clear smooth boundary.
Bt2—16 to 20 inches; strong brown (7.5YR 5/8) (95 percent) and reddish yellow (7.5YR 6/6) (5 percent) channery silty clay; moderate medium subangular blocky structure; firm, sticky and plastic; many distinct clay films on faces of peds; 10 percent weathered shale fragments; slightly acid; clear smooth boundary.
C—20 to 36 inches; brownish yellow (10YR 6/8) very channery silty clay; massive; firm, sticky and plastic; 55 percent coarse fragments; neutral; abrupt irregular boundary.
R—36 inches; hard, interbedded shale and platy limestone; strongly effervescent.

Range in Characteristics

Thickness of the solum: 10 to 30 inches
Depth to hard bedrock: 20 to 40 inches
Rock fragments: 0 to 15 percent throughout the solum and 25 to 80 percent in the C horizon
Reaction: Slightly acid to moderately alkaline in the solum and neutral to moderately alkaline and strongly effervescent in the C horizon

A horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—2 to 4
Texture—silty clay loam

Bt horizon:
Hue—5YR to 10YR

Value—4 to 6
Chroma—3 to 8
Texture—clay or silty clay

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture—silty clay or clay in the fine earth fraction

Combs Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate to moderately rapid
Physiography: Valley and Ridge province
Parent material: Alluvium of soils formed in residuum derived from sandstone, siltstone, and shale
Slope range: 0 to 3 percent

Associated Soils

- Biltmore soils are well drained, do not have a mollic epipedon, and are in landscape positions nearest the river
- Huntington soils are well drained, have more silt and less sand than Combs soils, and are in landscape positions nearer the river
- Sindion soils are well drained, have more clay in the subsoil, and are in positions on the landscape similar to those of Combs soils

Typical Pedon

Combs fine sandy loam, 0 to 3 percent slopes, occasionally flooded, 0.2 mile west-northwest (300 degrees) of intersection of VA 646 and U.S. 211, west (270 degrees) of intersection of VA 766 and U.S. 211:

Ap—0 to 11 inches; dark brown (10YR 3/3), brown (10YR 5/3) dry, fine sandy loam; weak fine granular structure; very friable; many very fine and many fine roots; slightly acid; abrupt smooth boundary.
A—11 to 18 inches; dark brown (10YR 3/3), brown (10YR 5/3) dry, fine sandy loam; weak very fine subangular blocky structure; very friable; common very fine roots; neutral; gradual smooth boundary.
Bw—18 to 44 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak very fine subangular blocky structure; very friable; few very fine roots; neutral; gradual smooth boundary.
C—44 to 62 inches; brown (7.5YR 4/4) sandy loam; very friable; neutral.

Range in Characteristics

Thickness of the solum: More than 40 inches
Depth to hard bedrock: More than 60 inches
Rock fragments: 0 to 5 percent in the A, B, and C horizons
Reaction: Moderately acid to neutral

A horizon:
Hue—10YR or 7.5YR
Value—3
Chroma—2 or 3
Texture—fine sandy loam

Bw horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—4 to 6
Texture—fine sandy loam or sandy loam

C horizon:
Hue—10YR to 7.5YR
Value—4 or 5
Chroma—4 to 6
Texture—fine sandy loam, sandy loam, and loamy fine sand; in some pedons, stratified

Cotaco Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Physiography: Valley and Ridge province
Parent material: Alluvium derived from acid sandstone, siltstone, and shale
Slope range: 2 to 7 percent

Associated Soils

- Craigsville soils are well drained, have more rock fragments in the subsoil, and are on adjacent flood plains
- Maurertown and Purdy soils are both poorly drained, have more clay in the subsoil, and are in positions on the landscape similar to those of Cotaco soils
- Monongahela soils are moderately well drained and have a fragipan at a depth of 18 to 24 inches
- Tygart soils are somewhat poorly drained soils, have more clay than Cotaco soils, and are in similar positions on the landscape
- Zoar soils are moderately well drained, have more clay in the subsoil than Cotaco soils, and are in higher positions on the landscape

Typical Pedon

Cotaco loam, 2 to 7 percent slopes, 0.6 mile (320 degrees) northwest of intersection of U.S. 211 and VA 646, about 0.8 mile (270 degrees) west of intersection of VA 646 and VA 766:

Ap—0 to 9 inches; dark brown (10YR 4/3) loam; weak fine granular structure; very friable; few fine and very fine roots; 2 percent gravel; strongly acid; abrupt wavy boundary.
Bt1—9 to 15 inches; yellowish brown (10YR 5/4) loam; weak fine granular structure; friable; few very fine roots; few fine faint clay films on faces of peds; 1 percent gravel; few fine faint light yellowish brown (10YR 6/4) and yellowish brown (10YR 5/6) masses of iron accumulations; strongly acid; clear wavy boundary.
Bt2—15 to 23 inches; light yellowish brown (10YR 6/4) loam; weak fine granular structure; friable; few very fine roots; 1 percent gravel; few patchy clay films on faces of peds; common medium distinct grayish brown (10YR 5/2) iron depletions and yellowish brown (10YR 5/6) masses of iron accumulations; strongly acid; gradual wavy boundary.
Bt3—23 to 33 inches; brown (10YR 5/3) loam; weak subangular blocky structure; friable; few very fine roots; thin clay films on faces of peds; common medium faint grayish brown (10YR 5/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of iron accumulations; very strongly acid; gradual wavy boundary.
Bt4—33 to 52 inches; grayish brown (2.5Y 5/2) loam; moderate medium subangular blocky structure; friable; thin clay films on faces of peds; many coarse prominent strong brown (7.5YR 5/8) masses of iron accumulations; extremely acid; diffuse wavy boundary.
Cg—52 to 72 inches; light gray (10YR 7/1) loam; massive; firm; 2 percent gravel; many coarse prominent strong brown (7.5YR 5/8) masses of iron accumulations; extremely acid.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Depth to hard bedrock: More than 60 inches
Rock fragments: 2 to 10 percent throughout
Reaction: Unless limed, extremely acid to strongly acid

A horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture—loam in the fine earth fraction

Bt horizon:
Hue—5YR to 2.5Y
Value—4 to 6
Chroma—3 to 8
Texture—silt loam or loam in the fine earth fraction

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 8
Chroma—0 to 8
Texture—silt loam, loam, or clay loam in the fine earth fraction

Craigsville Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid to rapid
Physiography: Valley and Ridge province
Parent material: Mixed alluvium
Slope range: 0 to 4 percent

Associated Soils

• Combs soils are well drained, have fewer rock fragments than Craigsville soils, and are in similar landscape positions
• Cotaco soils are moderately well drained and are on terraces adjacent to flood plains
• Sherando soils are well drained to excessively drained and are in colluvial and alluvial positions, higher than those of Craigsville soils

Typical Pedon

Craigsville cobbly sandy loam, 0 to 4 percent slopes, frequently flooded, 0.6 mile north (10 degrees) of intersection of VA 657 and VA 656 and 500 feet southwest (220 degrees) of intersection of VA 658 and VA 656:

Ap—0 to 7 inches; dark brown (10YR 4/3) cobbly sandy loam; weak fine granular structure; friable; common fine and medium roots; 25 percent cobbles; strongly acid; clear smooth boundary.
Bw1—7 to 27 inches; dark yellowish brown (10YR 4/6) very cobbly sandy loam; weak fine granular structure; friable; common fine and medium roots; 35 percent cobbles; strongly acid; gradual wavy boundary.
Bw2—27 to 34 inches; brown (7.5YR 4/4) very cobbly sandy loam; weak fine granular structure; friable; few fine roots; 40 percent cobbles; strongly acid; gradual wavy boundary.
C—34 to 62 inches; dark yellowish brown (10YR 4/4) very cobbly sandy loam; massive; friable; 50 percent cobbles; strongly acid.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to hard bedrock: More than 60 inches
Rock fragments: Rounded pebbles and cobbles that

make up 15 to 35 percent of the A horizon and 35 to 60 percent of the B and C horizons
Reaction: Very strongly acid or strongly acid, unless limed

A horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—2 to 4
Texture—sandy loam in the fine earth fraction

Bw horizon:
Hue—5YR to 10YR
Value—4 or 5
Chroma—4 to 6
Texture—sandy loam in the fine earth fraction

C horizon:
Hue—5YR to 10YR
Value—4 or 5
Chroma—3 to 6
Texture—sandy loam or loamy sandy in the fine earth fraction

Dekalb Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Rapid
Physiography: Massanutten Mountains
Parent material: Residuum derived from gray and brown, acid sandstone interbedded in places with shale
Slope range: 2 to 70 percent

Associated Soils

- Berks soils are well drained soils, have more silt and clay in the subsoil, and are on lower side slopes
- Drall soils are excessively drained, have bedrock at a depth of 40 to 60 inches, and are on steep, convex summits and shoulders
- Massanutten soils are well drained, have fewer rock fragments in the subsoil than Dekalb soils, and are in lower landscape positions
- Sylvatus and Sylco soils are well drained, have more silt and less sand in the subsoil than Dekalb soils, and are in adjacent landscape positions
- Weikert soils are well drained, have bedrock at a depth of 10 to 20 inches, and are on lower side slopes
- Zepp soils are well drained, have fewer rock fragments in the solum, are very deep, and are on lower side slopes

Typical Pedon

Dekalb channery sandy loam, 15 to 35 percent slopes, very stony, 1.2 miles southeast of intersection of VA 675 and VA 730, about 2 miles northwest (350 degrees) of intersection of VA 615 and VA 675:

Oi—2 inches to 0; hardwood leaf litter, mainly oak.
A—0 to 4 inches; very dark gray (10YR 3/1) channery sandy loam; weak fine granular structure; friable; common fine and medium and few coarse roots; 20 percent rock fragments; very strongly acid; abrupt smooth boundary.
E—4 to 7 inches; light yellowish brown (10YR 6/4) channery sandy loam; moderate fine granular structure; friable; common fine and medium and few coarse roots; 20 percent rock fragments; very strongly acid; abrupt smooth boundary.
Bw—7 to 32 inches; yellowish brown (10YR 5/4) very channery sandy loam; weak fine subangular blocky structure; friable; common fine and medium roots; few fine pores; 35 percent rock fragments; very strongly acid; clear smooth boundary.
C—32 to 38 inches; light yellowish brown (10YR 6/4) very channery sandy loam; massive; friable; 50 percent rock fragments; very strongly acid; abrupt smooth boundary.
R—38 inches; hard sandstone.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to hard bedrock: 20 to 40 inches
Rock fragments: 10 to 60 percent in the solum; 50 to 90 percent in the C horizon
Reaction: Extremely acid to slightly acid in the surface layer and extremely acid to strongly acid in the subsoil

A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—sandy loam in the fine earth fraction

E horizon:
Hue—10YR
Value—5 or 6
Chroma—1 to 4
Texture—loam or sandy loam in the fine earth fraction

B horizon:
Hue—7.5YR or 10YR
Value—5 to 8
Chroma—4 to 8
Texture—sandy loam in the fine earth fraction

C horizon:
Hue—7.5YR or 10YR
Value—5 or 6

Chroma—4 to 6
Texture—sandy loam in the fine earth fraction

Drall Series

Depth class: Deep
Drainage class: Excessively drained
Permeability: Rapid
Physiography: Massanutten Mountains
Parent material: Residuum derived from sandstone or quartzite
Slope range: 15 to 70 percent

Associated Soils

• Dekalb soils are well drained, have bedrock at a depth of 20 to 40 inches, and are in positions on the landscape similar to those of Drall soils
• Zepp soils are very deep and well drained and have more clay than Drall soils

Typical Pedon

Drall channery sandy loam, in an area of Rock outcrop-Drall-Dekalb complex, 15 to 70 percent slopes, 3 miles north of Pitt Spring, 150 feet north-northeast (20 degrees) of radio relay tower on Big Mountain, in George Washington National Forest:

A—0 to 4 inches; very dark grayish brown (10YR 3/2) channery sandy loam; weak fine granular structure; very friable; many fine and medium and few coarse roots; 20 percent rock fragments; very strongly acid; abrupt smooth boundary.
E—4 to 9 inches; light brownish gray (10YR 6/2) channery loamy sand; weak fine granular structure; friable; many fine and medium and common coarse roots; 30 percent rock fragments; very strongly acid; abrupt smooth boundary.
Bw1—9 to 16 inches; yellowish brown (10YR 5/6) very channery loamy sand that has thin layers of sandy loam on horizontal surfaces of rock fragments; weak fine subangular blocky structure; many medium and few coarse roots; 40 percent rock fragments; very strongly acid; clear smooth boundary.
Bw2—16 to 30 inches; yellowish brown (10YR 5/6) very channery loamy sand; weak fine subangular blocky structure; very friable; common fine roots; 60 percent rock fragments; very strongly acid; clear wavy boundary.
C—30 to 50 inches; brownish yellow (10YR 6/6) very channery loamy sand; single grained; loose; few fine roots; 60 percent rock fragments; very strongly acid; clear wavy boundary.
R—50 inches; hard sandstone.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to hard bedrock: 40 to 60 inches
Rock fragments: 15 to 30 percent in the A horizon and 40 to 90 percent in the B and C horizons
Reaction: Very strongly acid or strongly acid

A horizon:
Hue—10YR
Value—3 to 7
Chroma—1 to 4
Texture—sandy loam in the fine earth fraction

E horizon:
Hue—10YR
Value—5 to 7
Chroma—1 or 2
Texture—loamy sand or sandy loam in the fine earth fraction

B horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loamy sand in the fine earth fraction

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—4 to 8
Texture—loamy sand in the fine earth fraction

Dyke Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiography: Blue Ridge Mountains
Parent material: Colluvium derived from greenstone and granodiorite
Slope range: 2 to 15 percent

Associated Soils

• Catoctin and Myersville soils are well drained, have a loamy subsoil, and are in higher, residual positions than Dyke soils, on side slopes
• Thurmont soils are well drained soils, have a loamy subsoil, and are on slightly higher slopes than Dyke soils

Typical Pedon

Dyke loam, 2 to 7 percent slopes, 0.5 mile northeast of intersection of VA 689 and VA 668, about 0.4 mile southwest of intersection of VA 668 and VA 672:

Ap—0 to 8 inches; strong brown (7.5YR 4/6) loam;

moderate medium granular structure; friable; common very fine roots; few fine pores; 2 percent rock fragments; strongly acid; abrupt smooth boundary.

Bt1—8 to 14 inches; red (2.5YR 4/6) clay; weak medium angular blocky structure; firm, sticky and plastic; few fine roots; common fine distinct clay films on faces of peds; strongly acid; clear wavy boundary.

Bt2—14 to 32 inches; red (2.5YR 4/8) clay; moderate medium angular blocky structure; firm, sticky and plastic; common fine distinct clay films on faces of peds; strongly acid; gradual wavy boundary.

Bt3—32 to 44 inches; dark red (2.5YR 3/6) silty clay loam; weak medium subangular blocky structure; friable, sticky and plastic; common fine distinct clay films on faces of peds; very strongly acid; gradual wavy boundary.

C—44 to 72 inches; red (2.5YR 4/8) cobbly clay loam; massive; friable, slightly sticky and slightly plastic; 15 percent granite cobbles; very strongly acid.

Range in Characteristics

Thickness of the solum: 30 to more than 60 inches
Depth to hard bedrock: More than 60 inches
Rock fragments: 0 to 10 percent in the solum and 15 to 35 percent in the C horizon
Reaction: Very strongly acid or strongly acid in the A and B horizons, unless limed, and very strongly acid to moderately acid in the C horizon

A horizon:
Hue—2.5YR to 7.5YR
Value—2 to 4
Chroma—2 to 6
Texture—loam

Bt horizon:
Hue—10R to 5YR
Value—3 or 4
Chroma—4 to 8
Texture—clay, silty clay, silty clay loam

C horizon:
Hue—10R to 2.5YR
Value—4 to 6
Chroma—4 to 8
Texture—silty clay loam or clay loam in the fine earth fraction

Edgemont Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderate to moderately rapid
Physiography: Blue Ridge Mountains
Parent material: Residuum derived from quartzite and metasedimentary rocks
Slope range: 2 to 70 percent

Associated Soils

- Braddock soils are well drained, have a subsoil of red clay, and are in colluvial positions on the landscape
- Edneytown soils are well drained, formed in residuum derived from granite, and are in positions on the landscape similar to those of Edgemont soils
- Thurmont soils are well drained, have a loamy subsoil, and are in colluvial positions on the landscape

Typical Pedon

Edgemont channery sandy loam, 15 to 35 percent slope, in an area of Edgemont-Dekalb complex, 15 to 35 percent slopes, very stony, 0.8 mile southeast of intersection of VA 611 and VA 629, about 1.6 miles northwest of intersection of VA 689 and VA 629:

Oi—2 to 0 inches; leaf litter from mixed oaks.

A—0 to 3 inches; very dark grayish brown (10YR 3/2) channery sandy loam; weak fine granular structure; friable; many fine and medium and few coarse roots; 20 percent quartzite channers; strongly acid; abrupt smooth boundary.

BE—3 to 12 inches; yellowish brown (10YR 5/4) channery sandy loam; weak fine subangular blocky structure; friable; many fine and medium and few coarse roots; few fine pores; 20 percent quartzite channers; strongly acid; abrupt smooth boundary.

Bt1—12 to 26 inches; yellowish brown (10YR 5/6) channery loam; weak fine and medium subangular blocky structure; friable; common fine and medium roots; few fine pores; few fine distinct clay films on faces of peds; 15 percent quartzite channers; strongly acid; clear smooth boundary.

Bt2—26 to 36 inches; yellowish brown (10YR 5/6) very channery loam; weak fine subangular blocky structure; friable; few fine roots; few fine pores; few fine distinct clay films on faces of peds; 40 percent quartzite fragments; strongly acid; clear smooth boundary.

C—36 to 52 inches; yellowish brown (10YR 5/4) very channery loamy sand; massive; very friable; few fine roots; 55 percent quartzite fragments; strongly acid; abrupt smooth boundary.

R—52 inches; hard quartzite.

Range in Characteristics

Thickness of the solum: 20 to 40
Depth to hard bedrock: More than 40 inches

Rock fragments: 15 to 30 percent in the solum and 35 to 90 percent in the C horizon
Reaction: Extremely acid to strongly acid

A horizon:
Hue—10YR
Value—2 or 3
Chroma—0 to 2
Texture—sandy loam in the fine earth fraction

BE and Bt horizon:
Hue—7.5YR and 10YR
Value—5 or 6
Chroma—4 to 8
Texture—sandy loam or loam in the fine earth fraction

C horizon:
Hue—7.5YR and 10YR
Value—5 or 6
Chroma—2 to 8
Texture—sandy loam or loamy sand in the fine earth fraction

Edneytown Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiography: Blue Ridge Mountains
Parent material: Residuum derived from granite
Slope range: 2 to 55 percent

Associated Soils

- Peaks soils are moderately deep soils and somewhat excessively drained and have more rock fragments than Edneytown soils and less clay in the solum
- Edgemont soils are well drained, have coarse fragments dominantly of quartzite and schist, and are in positions on the landscape similar to those of Edneytown soils
- Thurmont soils are well drained, have a redder subsoil than Edneytown soils, and are on lower, colluvial slopes

Typical Pedon

Edneytown loam, 15 to 35 percent slopes, 0.1 mile north of intersection of VA 607 and VA 759, about 2.9 miles northeast of intersection of VA 759 and VA 606:

Oi—2 to 1 inches; hardwood leaf litter.
Oe—1 to 0 inches; black (10YR 2/1) decomposed forest litter.
A—0 to 6 inches; brown (10YR 4/3) loam; weak fine granular structure; friable; many fine and medium and few coarse roots; 5 percent rock fragments; very strongly acid; abrupt smooth boundary.
E—6 to 12 inches; yellowish brown (10YR 5/6) loam; weak fine subangular blocky structure; friable; many fine and few medium roots; few fine pores; 2 percent rock fragments; very strongly acid; abrupt smooth boundary.
Bt1—12 to 24 inches; strong brown (7.5YR 5/6) clay loam; moderate fine subangular blocky structure; friable, slightly sticky and slightly plastic; few fine and medium roots; few fine flakes of mica; common distinct clay films on faces of peds; 5 percent rock fragments; very strongly acid; clear smooth boundary.
Bt2—24 to 39 inches; strong brown (7.5YR 5/8) sandy clay loam; moderate fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; few flakes of mica; common fine distinct clay films on faces of peds; few fine pores; 10 percent rock fragments; strongly acid; abrupt smooth boundary.
C1—39 to 49 inches; strong brown (7.5YR 5/6) and yellowish brown (10YR 5/8) sandy loam; massive; friable; common fine mica flakes; 10 percent rock fragments; strongly acid; clear smooth boundary.
C2—49 to 62 inches; yellowish brown (10YR 5/6) sandy loam; massive; friable; common fine mica flakes; 5 percent rock fragments; very strongly acid.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to hard bedrock: More than 60 inches
Rock fragments: 0 to 10 percent in the A and E horizons and 0 to 5 percent in the Bt and C horizons
Reaction: Very strongly acid to moderately acid in the A and E horizons and very strongly acid or strongly acid in the B and C horizons

A horizon:
Hue—10YR
Value—3 to 6
Chroma—1 to 4
Texture—loam

E horizon:
Hue—10YR
Value—4 to 7
Chroma—3 to 6
Texture—loam or sandy loam

Bt horizon:
Hue—7.5YR or 10YR
Value—5 to 7
Chroma—4 to 8

Texture—clay loam and sandy clay loam

C horizon:
Hue—7.5YR or 10YR
Value—5 to 8
Chroma—3 to 8
Texture—sandy loam

Cr horizon (where it occurs):
Weathered granite that crushes to sandy loam or loamy sand

Edom Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderate to moderately slow
Physiography: Valley and Ridge province
Parent material: Residuum derived from interbedded platy limestone and calcareous shale
Slope range: 7 to 25 percent

Associated Soils

- Chilhowie soils are well drained, have bedrock at a depth of less than 40 inches, and are in positions on the landscape similar to those of Edom soils
- Carbo soils are well drained, have bedrock at a depth of less than 40 inches, and are in positions on the landscape similar to those of Edom soils
- Oaklet soils are well drained, have a thick solum, and are in positions on the landscape similar to those of Edom soils

Typical Pedon

Edom silty clay loam, 7 to 15 percent slopes, 0.2 mile west of intersection of U.S. 340 and VA 613, about 0.4 mile northwest of intersection of U.S. 340 and VA 650:

Ap—0 to 8 inches; dark brown (10YR 4/3) silty clay loam; moderate fine granular structure; firm, slightly sticky and slightly plastic; common fine roots; slightly acid; abrupt smooth boundary.
Bt1—8 to 28 inches; strong brown (7.5YR 5/6) silty clay; moderate fine and medium angular blocky structure; firm; common fine roots; firm, sticky and plastic; many fine distinct clay films on faces of peds; slightly acid; clear smooth boundary.
Bt2—28 to 38 inches; yellowish brown (10YR 5/6) weak fine and medium subangular blocky structure; silty clay; firm, sticky and plastic; few fine roots; many distinct clay films on faces of peds; few black iron and manganese coatings on fragments; 10 percent shale fragments; slightly acid; clear smooth boundary.
C—38 to 55 inches; brownish yellow (10YR 6/8) channery silty clay loam; massive; friable; 20 percent channers; slightly effervescent in the lower part; neutral; clear smooth boundary.
Cr—55 inches; fractured, interbedded, calcareous shale and limestone.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: 40 to 60 inches
Rock fragments: 2 to 30 percent in the solum and 20 to 90 percent in the C horizon
Reaction: Strongly acid to mildly alkaline in the upper part of the solum and moderately acid to mildly alkaline in the lower part of the solum and in the C horizon

Ap horizon:
Hue—2.5Y to 7.5YR
Value—3 or 4
Chroma—2 to 4
Texture—silty clay loam

Bt horizon:
Hue—5YR to 10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay or clay

C horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—3 to 8
Texture—silty clay loam or silty clay

Fauquier Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderate
Physiography: Blue Ridge Mountains
Parent material: Residuum derived from greenstone
Slope range: 2 to 35 percent

Associated Soils

- Catoctin soils are well drained, consist of more than 35 percent coarse fragments, have less clay in the subsoil than Fauquier soils, and are in steeper positions on the landscape
- Dyke soils are well drained, have more clay in the subsoil, and are on lower, colluvial side slopes
- Myersville soils are well drained, have less clay in the subsoil than Fauquier soils, and are in similar landscape positions

Typical Pedon

Fauquier silt loam, 15 to 25 percent slopes, 0.8 mile north (32 degrees) from intersection of VA 759 and VA 607, about 2.8 miles north (50 degrees) from intersection of VA 606 and VA 759:

A—0 to 7 inches; reddish brown (5YR 4/4) silt loam; moderate fine granular structure; friable, slightly sticky and slightly plastic; many fine roots; moderately acid; abrupt smooth boundary.

Bt1—7 to 17 inches; red (2.5YR 4/6) silty clay loam; moderate fine subangular blocky structure; friable, slightly sticky and slightly plastic; common fine pores; common fine roots; common distinct clay film on faces of peds; moderately acid; clear smooth boundary.

Bt2—17 to 33 inches; red (2.5YR 4/8) silty clay; moderate fine and medium subangular blocky structure; firm, sticky and plastic; few fine roots; many distinct clay films on faces and interiors of peds; few small weathered fragments of greenstone; few fine black N 2/0 manganese stains; moderately acid; clear smooth boundary.

C1—33 to 49 inches; red (2.5YR 5/6) silty clay loam between massive fragments of weathered greenstone; weak very fine subangular blocky structure; common fine black (N 2/0) manganese stains on faces of weathered greenstone fragments and through pockets of silty material between fragments; strongly acid; clear smooth boundary.

Cr—49 to 66 inches; weathered greenstone.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to soft bedrock: More than 40 inches
Rock fragments: 0 to 10 percent throughout
Reaction: Very strongly acid to moderately acid

A horizon:
Hue—2.5YR or 5YR
Value—3 or 4
Chroma—4
Texture—silt loam

Bt horizon:
Hue—2.5YR or 10R
Value—4 to 6
Chroma—6 to 8, but in some pedons, 5YR that has value of 3 or 4 and chroma of 4 to 6 in some subhorizons
Texture—silty clay loam or silty clay

C horizon:
Hue—2.5YR or 10R
Value—4 to 6
Chroma—6 to 8
Texture—silty clay loam or silty clay

Gilpin Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Physiography: Valley and Ridge province
Parent material: Residuum derived from siltstone, shale, sandstone
Slope range: 2 to 55 percent

Associated Soils

- Berks soils are well drained soils, have more rock fragments in the subsoil than Gilpin soils, and are in similar landscape positions
- Jefferson and Laidig soils are well drained, are more than 60 inches to bedrock, and are on lower, colluvial side slopes and benches
- Weikert soils are well drained, are 10 to 20 inches to bedrock, and are in landscape positions similar to those of Gilpin soils

Typical Pedon

Gilpin silt loam, 2 to 15 percent slopes, 2.6 miles southwest (240 degrees) of intersection of VA 675 and VA 730, about 0.9 mile northwest (330 degrees) of Duncans Knob on the U.S. Forest Service Road in Cresman Hollow, in the George Washington National Forest:

A—0 to 2 inches; dark brown (10YR 3/3) silt loam; weak fine granular structure; friable, slightly sticky and nonplastic; 5 percent rock fragments; strongly acid; abrupt smooth boundary.

Bt1—2 to 8 inches; brownish yellow (10YR 6/6) silt loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; common fine pores; few distinct clay films on faces of peds and in pores; 5 percent rock fragments; strongly acid; gradual smooth boundary.

Bt2—8 to 15 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine pores; many distinct clay films on faces of peds and in pores; 5 percent rock fragments; strongly acid; clear smooth boundary.

Bt3—15 to 24 inches; yellowish brown (10YR 5/8) channery silty clay loam; moderate fine subangular blocky structure; friable, slightly sticky and slightly plastic; few fine pores; many distinct brownish

yellow (10YR 6/8) clay films on faces of peds and in pores; 20 percent rock fragments; strongly acid; clear smooth boundary.
C—24 to 36 inches; yellowish brown (10YR 5/6) very channery silt loam; massive; friable, slightly sticky and nonplastic; few brownish yellow (10YR 6/8) clay coatings on rock fragments; 55 percent rock fragments; very strongly acid; abrupt smooth boundary.
R—36 inches; fractured shale.

Range in Characteristics

Thickness of the solum: 18 to 36 inches
Depth to bedrock: 20 to 40 inches
Rock fragments: 5 to 10 percent in the A horizon, 5 to 30 percent in the B horizon, and 35 to 90 percent in the C horizon
Reaction: Extremely acid to strongly acid, unless limed

A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture—silt loam in the fine earth fraction

Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 8
Texture—silt loam or silty clay loam

C horizon:
Hue—7.5YR to 2.5Y
Value—3 to 5
Chroma—2 to 6
Texture—silt loam or silty clay loam

Huntington Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiography: Flood plains in the Valley and Ridge province
Parent material: Alluvium washed from soils formed in limestone, sandstone, and shale
Slope range: 0 to 3 percent

Associated Soils

• Combs soils are well drained, have less silt and clay than Huntington soils, and are in positions on the landscape similar to those of Huntington soils
• Sindion soils are moderately well drained and are lower than Huntington soils on the landscape, at the base of slopes on uplands
• Wheeling soils are well drained and on terraces that are slightly higher on the landscape than Huntington soils

Typical Pedon

Huntington loam, 0 to 3 percent slopes, occasionally flooded, 1.5 miles northeast (63 degrees) from intersection of VA 684 and VA 717, northwest (320 degrees) of intersection of VA 663 and U.S. 340:

Ap—0 to 10 inches; dark brown (10YR 3/3) moist and brown (10YR 5/3) dry, loam; weak fine granular structure; very friable; many fine roots; slightly acid; abrupt smooth boundary.
AB—10 to 16 inches; dark brown (10YR 4/3) loam; weak fine subangular blocky structure; friable; few fine roots; neutral; clear smooth boundary.
Bw1—16 to 36 inches; dark brown (7.5YR 4/4) silt loam; moderate fine subangular blocky structure; friable; few fine roots; common fine discontinuous tubular pores; mildly alkaline; clear wavy boundary.
Bw2—36 to 48 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine subangular blocky structure; friable; few fine discontinuous tubular pores; mildly alkaline; gradual wavy boundary.
C—48 to 70 inches; dark brown (7.5YR 4/4) fine sandy loam; massive; friable; mildly alkaline.

Range in Characteristics

Thickness of the solum: 40 to 70 inches
Thickness of the mollic epipedon: 10 to 14 inches
Depth to hard bedrock: More than 60 inches
Rock fragments: Sandstone gravel and cobbles that make up 0 to 3 percent, by volume, of the solum and 0 to 10 percent of the C horizon
Reaction: Moderately acid to mildly alkaline

A or Ap horizon:
Hue—10YR or 7.5YR
Value—2 or 3
Chroma—1 to 3
Texture—loam

AB or BA horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—2 or 3
Texture—loam or silt loam

Bw horizon:
Hue—10YR or 7.5YR
Value—4 or 5

Chroma—3 or 4
Texture—silt loam

C horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—3 or 4
Texture—fine sandy loam or loam in the fine earth fraction

Jefferson Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Physiography: Valley and Ridge province
Parent material: Colluvium derived from acid sandstone, shale, and siltstone
Slope range: 2 to 55 percent

Associated Soils

- Berks and Gilpin soils are well drained, have bedrock at a depth of less than 40 inches, and are on side slopes
- Laidig soils are well drained, have a fragipan, and are in positions on the landscape similar to those of Jefferson soils
- Massanutten soils are well drained, have less clay in the subsoil than Jefferson soils, and are on higher side slopes
- Weikert soils are well drained, have bedrock at a depth of 10 to 20 inches, and are on steep side slopes

Typical Pedon

Jefferson fine sandy loam, 2 to 15 percent slopes, 0.6 mile southeast of intersection of U.S. 211 and entrance to picnic area in George Washington National Forest, 1.9 miles south-southwest of intersection of U.S. 211 and VA 615:

A—0 to 5 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; friable; many fine and medium roots; 10 percent rock fragments; strongly acid; abrupt smooth boundary.
E—5 to 12 inches; light yellowish brown (10YR 6/4) fine sandy loam; weak fine subangular blocky structure; friable; common fine roots; common fine and medium pores; 10 percent coarse fragments; strongly acid; abrupt smooth boundary.
Bt1—12 to 21 inches; yellowish brown (10YR 5/6) gravelly loam; weak fine and medium subangular blocky structure; friable; common fine roots; common fine distinct clay films on faces of peds; common fine and medium pores; 15 percent rock fragments; strongly acid; clear smooth boundary.
Bt2—21 to 29 inches; strong brown (7.5YR 5/6) (85 percent), red (2.5YR 4/6) (13 percent), and reddish yellow (7.5YR 6/8) (2 percent) gravelly sandy clay loam; friable; common fine roots; common fine distinct clay films on faces of peds; few fine pores; 15 percent rock fragments; strongly acid; clear smooth boundary.
Bt3—29 to 44 inches; dark yellowish brown (10YR 4/6) (80 percent), red (2.5YR 4/6) (15 percent), and brown (10YR 4/3) (5 percent) gravelly sandy clay loam; moderate fine and medium subangular blocky structure; friable; few fine roots; many fine distinct clay films faces of peds; few fine pores; 20 percent rock fragments; very strongly acid; clear smooth boundary.
BC—44 to 65 inches; variegated yellowish brown (10YR 5/4), brownish yellow (10YR 6/8), yellow (10YR 7/8), and dark red (2.5YR 3/6) very gravelly sandy clay loam; weak fine and medium subangular blocky structure; friable; few fine distinct clay films on faces of peds; 40 percent rock fragments; very strongly acid.

Range in Characteristics

Thickness of the solum: More than 40 inches
Depth to hard bedrock: More than 60 inches
Rock fragments: 5 to 35 percent to a depth of 40 inches and 20 to 80 percent below a depth of 40 inches
Reaction: Very strongly acid or strongly acid

A horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 3
Texture—fine sandy loam

E horizon:
Hue—10YR
Value—4 to 6
Chroma—3 or 4
Texture—fine sandy loam, loam, or sandy loam

Bt horizon
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8; in some pedons, colors are variegated in shades of brown, yellow, red, and, in the lower part, shades of gray
Texture—clay loam or sandy clay loam in the fine earth fraction

BC horizon:
Hue—shades of red, brown, or gray

Texture—sandy clay loam in the fine earth fraction

C horizon (where it occurs):
Hue and texture—similar to those of the BC horizon

Laidig Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate to moderately rapid above the pan and slow to moderately slow in the fragipan
Physiography: Valley and Ridge province
Parent material: Colluvium derived from shale and sandstone
Slope range: 2 to 55 percent

Associated Soils

- Berks and Gilpin soils are well drained, have bedrock at a depth of 20 to 40 inches, and are on residual side slopes
- Jefferson soils are well drained, do not have a fragipan, and are in positions on the landscape similar to those of Laidig soils
- Weikert soils are well drained, have bedrock at a depth of 10 to 20 inches, and are on residual, steep side slopes

Typical Pedon

Laidig channery loam, 15 to 35 percent slopes, very stony, 1.9 miles north (10 degrees) of intersection of VA 615 and U.S. 211, about 1.9 miles northwest (350 degrees) of intersection of VA 646 and U.S. 211:

Oe—1 inch to 0; partly decomposed leaves and roots.
A—0 to 2 inches; very dark gray (10YR 3/1) channery loam; moderate fine granular structure; friable; many fine roots; 20 percent rock fragments; extremely acid; abrupt smooth
E—2 to 5 inches; yellowish brown (10YR 5/4) channery loam; weak fine granular structure; friable; many fine roots; 20 percent rock fragments; extremely acid; abrupt smooth boundary.
Bt1—5 to 15 inches; yellowish brown (10YR 5/4) channery loam; weak fine subangular blocky structure; friable; common fine roots; few fine distinct clay films on faces of peds and in pores; 20 percent rock fragments; strongly acid; gradual wavy boundary.
Bt2—15 to 30 inches; light yellowish brown (10YR 6/4) channery loam; weak fine subangular blocky structure; friable; few fine roots; few fine distinct clay films on faces of peds; 25 percent rock fragments; very strongly acid; clear wavy boundary.
Btx1—30 to 41 inches; strong brown (7.5YR 4/6) very channery sandy loam; moderate medium platy structure; firm; few fine faint clay films on faces of peds; common medium faint dark brown (7.5YR 4/4) masses of iron accumulations; 35 percent rock fragments; extremely acid; gradual wavy boundary.
Btx2—41 to 62 inches; strong brown (7.5YR 4/6) channery sandy loam; strong medium platy structure; firm; few fine faint clay films on faces of peds; common medium distinct light yellowish brown (2.5Y 6/4) masses of iron accumulations; 25 percent rock fragments; extremely acid.

Range in Characteristics

Thickness of the solum: 50 to 80 inches or more
Depth to fragipan: 30 to 50 inches
Rock fragments: Mostly sandstone and shale; make up 5 to 50 percent of the A, E, and Bt horizons; 15 to 70 percent of the Btx horizon; and 20 to 70 percent of the C horizon
Reaction: Extremely acid to strongly acid, unless limed

A horizon
Hue—10YR
Value—2 to 5
Chroma—1 to 4
Texture—loam in the fine earth fraction

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—1 to 6
Texture—loam, sandy loam, or fine sandy loam in the fine earth fraction

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture—fine sandy loam and loam in the fine earth fraction

Btx horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—3 to 8
Texture—fine sandy loam, sandy loam, or loam in the fine earth fraction

C horizon (where it occurs):
Hue—5YR to 10YR
Value—5 or 6
Chroma—3 to 8
Texture—fine sandy loam, sandy loam, loam in the fine earth fraction

Lodi Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiography: Valley and Ridge province
Parent material: Residuum derived from dolomitic limestone interbedded with sandstone and, to a lesser extent, shale
Slope range: 2 to 35 percent

Associated Soils

- Carbo soils are well drained, have a brownish clayey subsoil and bedrock at a depth of 20 to 40 inches, and are in slightly lower positions on the landscape
- Oaklet soils are well drained, have a brownish clayey subsoil and bedrock at a depth of 40 to 60 inches, and are in slightly lower positions on the landscape
- Timberville soils are well drained, have lithologic discontinuities in the control section, and are along drainageways

Typical Pedon

Lodi silt loam, 7 to 15 percent slopes, 0.6 mile southeast (160 degrees) of intersection of VA 654 and VA 653, about 0.8 mile northeast (40 degrees) of intersection of VA 675 and VA 654:

Ap—0 to 6 inches; dark brown (10YR 3/3) silt loam; weak fine subangular blocky structure; very friable; few fine roots; 5 percent chert fragments; strongly acid; abrupt smooth boundary.

Bt1—6 to 13 inches; strong brown (7.5YR 5/6) clay loam; moderate medium subangular blocky structure; friable, slightly plastic; few very fine roots; few fine pores; few fine clay films on faces of peds; 5 percent chert fragments; strongly acid; clear smooth boundary.

Bt2—13 to 28 inches; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; friable, slightly sticky and plastic; few fine pores; common distinct clay films on faces of peds; 5 percent chert fragments; strongly acid; gradual smooth boundary.

Bt3—28 to 57 inches; red (2.5YR 4/6) (85 percent) and yellowish brown (10YR 5/4) (15 percent) clay; moderate medium subangular blocky structure; firm, sticky and plastic; few fine pores; common distinct clay films on faces of peds; 5 percent chert fragments; strongly acid; diffuse irregular boundary.

C—57 to 84 inches; variegated red (2.5YR 4/6), light brownish yellow (10YR 6/4), and brownish yellow (10YR 6/6) silty clay loam; massive; friable; 5 percent chert fragments; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 80 inches
Depth to hard bedrock: More than 60 inches
Rock fragments: Sandstone, chert, or shale; on average, 0 to 10 percent in the solum
Reaction: Very strongly acid to slightly acid in the A horizon and very strongly acid or strongly acid in the B and C horizons

A horizon:
Hue—10YR
Value—3 to 6
Chroma—2 to 6
Texture—silt loam in the fine earth fraction

Bt horizon:
Hue—2.5YR to 7.5YR
Value—4 to 6
Chroma—6 to 8
Texture—dominantly clay or silty clay, but the range includes clay loam in the fine earth fraction

C horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture—silty clay loam or clay loam in the fine earth fraction

Massanutten Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid
Physiography: Massanutten Mountains
Parent material: Residuum derived from sandstone
Slope range: 2 to 55 percent

Associated Soils

- Dekalb soils are well drained, have more rock fragments in the subsoil, and are in positions on the landscape similar to those of Massanutten soils
- Jefferson soils are well drained, are deeper to bedrock, and are on colluvial landscapes

Typical Pedon

Massanutten channery loam, 35 to 55 percent slopes, very stony, 0.2 mile northwest (350 degrees) of the U.S. Forest Service Road near Pitt Spring, 100 feet northwest of wildlife pond, in the George Washington National Forest:

Oi—2 inches to 0; very dark grayish brown (10YR 3/2) loose leaves, twigs, and highly decomposed organic matter.
A—0 to 2 inches; brown (10YR 4/3) channery loam; weak fine granular structure; friable; common fine and few coarse roots; 20 percent rock fragments; very strongly acid; abrupt smooth boundary.
Bt1—2 to 12 inches; dark yellowish brown (10YR 4/6) channery loam; weak fine subangular blocky structure; friable, slightly sticky and nonplastic; common fine roots; few fine pores; few faint clay films on faces of peds; 20 percent rock fragments; strongly acid; clear smooth boundary.
Bt2—12 to 30 inches; yellowish brown (10YR 5/4) channery loam; weak fine subangular blocky structure; friable, slightly sticky and nonplastic; common fine and medium roots; few faint clay films on faces of peds; 25 percent coarse fragments; strongly acid; abrupt smooth boundary.
R—30 inches; hard sandstone.

Range in Characteristics

Thickness of the solum: 18 to 36 inches
Depth to hard bedrock: 20 to 40 inches
Rock fragments: 15 to 30 percent in the A and B horizons and 15 to 70 percent in the C horizon
Reaction: Extremely acid to strongly acid

A horizon:
Hue—7.5YR or 10YR
Value—2 to 5
Chroma—1 to 4
Texture—loam in the fine earth fraction

Bt horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loam or silt loam in the fine earth fraction

C horizon (where it occurs):
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loam in the fine earth fraction

Maurertown Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Very slow
Physiography: Valley and Ridge province
Parent material: Clayey alluvial deposits
Slope range: 0 to 2 percent

Associated Soils

• Cotaco soils are moderately well drained and are on terraces that are slightly higher than Maurertown soils
• Monongahela soils are moderately well drained, have a fragipan, and are higher than Maurertown soils, on terraces

Typical Pedon

Maurertown silt loam, 0 to 2 percent slopes, 0.5 mile northeast (60 degrees) of intersection of VA 615 and U.S. 211, about 0.8 mile northwest (350 degrees) of intersection of VA 615 and VA 762:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam; moderate very fine and fine granular structure; friable, slightly sticky and slightly plastic; many fine roots; slightly acid; abrupt smooth boundary.
Btg1—8 to 18 inches; grayish brown (10YR 5/2) silty clay loam; moderate fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; many fine roots; common very fine pores; many distinct clay films on faces of peds; few fine manganese concretions; common fine distinct yellowish brown (10YR 5/8) masses of iron accumulations; slightly acid; abrupt smooth boundary.
Btg2—18 to 32 inches; grayish brown (10YR 5/2) silty clay; strong fine and medium subangular blocky structure; firm, sticky and plastic; common fine roots; common fine and few medium pores; many distinct clay films on faces of peds; common fine manganese concretions; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulations; neutral; clear smooth boundary.
Btg3—32 to 44 inches; gray (10YR 6/1) silty clay; moderate fine and medium subangular blocky structure; firm, sticky and plastic; few fine roots; common very fine pores; many distinct clay films on faces of peds; common fine manganese concretions; common fine and medium distinct yellowish brown (10YR 5/6) masses of iron accumulations; neutral; clear smooth boundary.
Btg4—44 to 62 inches; gray (10YR 6/1) silty clay loam; weak fine and medium subangular blocky structure; firm, sticky and plastic; few fine pores; common distinct clay films on faces of peds; common fine manganese concretions; many coarse prominent yellowish brown (10YR 5/6) irregularly shaped masses of iron accumulations; neutral.

Range in Characteristics

Thickness of the solum: 40 to 60 inches or more

Depth to hard bedrock: More than 60 inches
Reaction: Moderately acid to neutral

A horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—1 to 3
Texture—silt loam

Btg horizon:
Hue—Neutral or 10YR to 5Y
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam, silty clay, or clay

C horizon (where it occurs):
Hue—Neutral or 10YR to 5Y
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam or silt loam in the fine earth fraction

Monongahela Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan, slow or moderately slow in the fragipan
Physiography: Valley and Ridge province
Parent material: Alluvium derived from acid sandstone and shale
Slope range: 2 to 15 percent

Associated Soils

- Braddock soils are well drained, have a red clay subsoil, and are in slightly higher positions on the landscape than Monongahela soils
- Cotaco soils are moderately well drained, do not have a fragipan, and are in slight depressions
- Maurertown and Purdy soils are poorly drained and are in slightly lower positions on the landscape than Monongahela soils
- Unison soils are well drained, have a yellowish red clay subsoil, and are slightly higher on the landscape than Monongahela soils
- Wheeling soils are well drained, do not have a fragipan, and are lower on the landscape than Monongahela soils, on terraces

Typical Pedon

Monongahela loam, 2 to 7 percent slopes, 0.6 mile northwest (350 degrees) of intersection of U.S. 211 and VA 646, about 0.7 mile west (290 degrees) of intersection of VA 646 and VA 766:

Ap—0 to 13 inches; dark yellowish brown (10YR 4/4) loam; weak fine granular structure; very friable; few fine roots; strongly acid; abrupt smooth boundary.
Bt1—13 to 18 inches; yellowish brown (10YR 5/4) loam; weak fine granular structure; very friable; few very fine roots; few distinct clay films on faces of peds; strongly acid; gradual smooth boundary.
Bt2—18 to 24 inches; yellowish brown (10YR 5/4) clay loam; weak fine subangular blocky structure; friable; few distinct clay films on faces of peds; common fine prominent yellowish red (5YR 5/8) masses of iron accumulations and few fine distinct light brownish gray (10YR 6/2) iron depletions; strongly acid; clear smooth boundary.
Btx1—24 to 34 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium platy structure; firm; few distinct clay films on faces of peds; common fine distinct grayish brown (10YR 5/2 iron depletions and common fine distinct strong brown (7.5YR 5/6) masses of iron accumulations; strongly acid; gradual wavy boundary.
Btx2—34 to 52 inches; light olive brown (2.5Y 5/6) loam; weak fine platy structure; firm; few faint clay films on faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions and common fine prominent strong brown (7.5YR 5/6) masses of iron accumulations; strongly acid; gradual wavy boundary.
C—52 to 62 inches; yellowish brown (10YR 5/6) loam; massive; friable; common fine distinct grayish brown (10YR 5/2) iron depletions and common fine prominent strong brown (7.5YR 5/6) masses of iron accumulations; 12 percent cobbles; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 72 inches or more
Depth to fragipan: 18 to 30 inches
Depth to hard bedrock: More than 60 inches
Rock fragments: Rounded gravel and cobbles make up 0 to 30 percent above the fragipan, 0 to 35 percent of the fragipan, and 0 to 40 percent of the C horizon
Reaction: Very strongly acid or strongly acid, unless limed

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—loam

Bt horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 8; redoximorphic depletions, if any,

are at a depth of 10 inches or more below the top of the Bt horizon
Texture—loam, clay loam, or sandy clay loam

Btx horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—2 to 8
Texture—loam or sandy clay loam

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—2 to 8
Texture—loam

Myersville Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderate
Physiography: Blue Ridge Mountains
Parent material: Residuum derived from greenstone
Slope range: 2 to 55 percent

Associated Soils

- Catoctin soils are well drained soils, have more rock fragments in the subsoil than Myersville soils, and are in similar landscape positions
- Dyke soils are well drained, have more clay in the subsoil than Myersville soils, and are on lower, colluvial side slopes
- Fauquier soils are well drained, have a red silty clay loam subsoil, and are on lower side slopes
- Edneytown soils are well drained, formed in residuum derived from granite, and are in positions on the landscape similar to those of Myersville soils
- Peaks soils are somewhat excessively drained, formed in residuum derived from granite, have more rock fragments than Myersville soils, and are in similar landscape positions

Typical Pedon

Myersville silt loam, in an area of Myersville-Catoctin complex, 15 to 35 percent slopes, very stony, 75 feet west (250 degrees) of intersection of Jeep Trail and Matthews Arm Road, 1.06 miles northwest (330 degrees) of intersection of boundaries of Page, Warren, and Rappahannock Counties, 0.3 mile southwest (194 degrees) of intersection of Beecher Mountain Trail and Matthews Arm Road, in the Shenandoah National Park:

Oi—1 inch to 0; hardwood leaf litter.
A—0 to 5 inches; dark brown (7.5YR 3/2) gravelly silt loam; weak fine granular structure; friable; many fine and common medium roots; 15 percent rock fragments; strongly acid; abrupt smooth boundary.
Bt1—5 to 11 inches; strong brown (7.5YR 4/6) silt loam; weak fine subangular blocky structure; friable; common fine roots; few fine distinct clay films on faces of peds; 10 percent rock fragments; very strongly acid; abrupt smooth boundary.
Bt2—11 to 29 inches; yellowish red (5YR 4/6) silty clay loam; weak fine and medium angular blocky structure; friable, slightly sticky and slightly plastic; few fine medium roots; many fine distinct clay films on faces of peds; common black (N 2/0) manganese stains; 5 percent rock fragments; strongly acid; clear smooth boundary.
Bt3—29 to 39 inches; yellowish red (5YR 5/8) silt loam; weak fine subangular blocky structure; friable, slightly sticky and nonplastic; few fine roots; many fine distinct clay films on faces of peds; many fine black (N 2/0) manganese stains; 10 percent rock fragments; strongly acid; clear smooth boundary.
C—39 to 48 inches; strong brown (7.5YR 5/8) silt loam; massive; friable; few fine roots; common black (N 2/0) manganese stains along vertical cracks; 10 percent rock fragments; strongly acid; abrupt smooth boundary.
Cr—48 to 66 inches; strong brown (7.5YR 5/6) weathered greenstone; common black (N 2/0) manganese stains; moderately acid.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to soft bedrock: 40 to 60 inches
Depth to hard bedrock: More than 60 inches
Rock fragments: 15 to 30 percent in the A horizon and in the upper part of the B horizon, 3 to 50 percent in the lower part of the B horizon, and 5 to 75 percent in the C horizon
Reaction: Very strongly acid to moderately acid, unless limed

A horizon:
Hue—5YR to 10YR
Value—2 to 5
Chroma—2 to 4
Texture—silt loam in the fine earth fraction

Bt horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture—silt loam or silty clay loam in the fine earth fraction

C and Cr horizons:
Hue—multicolored, commonly brown, red, yellow, gray, and black
Texture—silt loam or silty clay loam in the fine earth fraction

Oaklet Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Physiography: Valley and Ridge province
Parent material: Residuum derived from limestone
Slope range: 2 to 35 percent

Associated Soils

• Carbo and Chilhowie soils are well drained, have bedrock at a depth of 20 to 40 inches, and are in positions on the landscape similar to those of Oaklet soils
• Lodi soils are well drained, have a redder subsoil than that of Oaklet soils, and are slightly higher on the landscape
• Timberville soils are well drained, have a browner subsoil than Oaklet soils, and are at heads of drainageways, in small depressions, and in areas next to drainageways

Typical Pedon

Oaklet silt loam, in an area of Oaklet-Carbo complex, 2 to 15 percent slopes, very rocky, 0.5 mile northwest (315 degrees) of intersection of VA 646 and VA 616, about 1 mile south (165 degrees) of intersection of U.S. 211 and VA 646:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable, slightly sticky and slightly plastic; many fine roots; strongly acid; abrupt smooth boundary.
Bt1—7 to 12 inches; yellowish brown (10YR 5/6) clay; moderate fine and medium subangular blocky structure; friable, sticky and plastic; many fine roots; few fine pores; many clay films on faces of peds; slightly acid; abrupt smooth boundary.
Bt2—12 to 30 inches; yellowish brown (10YR 5/8) clay; strong medium and coarse angular blocky structure; firm, sticky and plastic; common fine roots; few fine roots; few fine pores; many continuous clay films on faces of peds and interiors of peds; slightly acid; clear smooth boundary.
Bt3—30 to 54 inches; strong brown (7.5YR 5/8) clay; strong moderate and coarse angular blocky structure; firm, sticky and plastic; few fine roots; few fine pores; many continuous clay films on faces of peds, in pores, and along root channels; few fine distinct gray (10YR 6/1) iron depletions below a depth of 40 inches; slightly acid; clear smooth boundary.
Bt4—54 to 73 inches; strong brown (7.5YR 5/6) clay; strong fine and medium subangular blocky structure; firm, sticky and plastic; few fine roots; few fine pores; many continuous clay films on faces and interiors of peds; common slickensides; common manganese stains; slightly acid.

Range in Characteristics

Thickness of the solum: More than 60 inches
Depth to hard bedrock: More than 60 inches
Rock fragments: 0 to 10 percent in the solum
Reaction: Very strongly acid to moderately alkaline

A or Ap horizon:
Hue—10YR or 7.5YR
Value—3 to 6
Chroma—2 to 6
Texture—silt loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8; in some pedons, redoximorphic features with low chroma below a depth of 40 inches
Texture—clay

C horizon (where it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—clay or silty clay

Peaks Series

Depth class: Moderately deep
Drainage class: Somewhat excessively drained
Permeability: Rapid
Physiography: Blue Ridge Mountains
Parent material: Residuum derived from granite
Slope range: 15 to 70 percent

Associated Soils

• Edneytown soils are well drained, are more than 60 inches to bedrock, have fewer rock fragments and more clay in the subsoil than Peaks soils, and are in similar landscape positions
• Thurmont soils are well drained, have more clay in the solum than Peaks soils, and are on lower, colluvial side slopes and benches

Typical Pedon

Peaks gravelly fine sandy loam, in an area of Peaks-Edneytown complex, 55 to 70 percent slopes, extremely stony, 0.8 mile north of Stonyman Overlook, 0.6 mile west of Pinnacle Picnic Grounds, 100 yards north of Crusher Ridge Trail, in the Shenandoah National Park:

Oi—2 inches to 0; hardwood leaf litter.
A—0 to 4 inches; very dark grayish brown (10YR 3/2) channery fine sandy loam; weak fine granular structure; friable; many fine and common medium roots; 15 percent rock fragments; strongly acid; abrupt smooth boundary.
Bw1—4 to 14 inches; yellowish brown (10YR 5/6) very channery sandy loam; weak fine and medium subangular blocky structure; friable; many fine and common medium roots; few fine discontinuous pores; 35 percent rock fragments; strongly acid; clear smooth boundary.
Bw2—14 to 31 inches; yellowish brown (10YR 5/8) very channery sandy loam; weak fine and medium subangular blocky structure; friable; many fine and common medium roots; few fine discontinuous pores; 45 percent rock fragments; strongly acid; clear smooth boundary.
C—31 to 38 inches; yellowish brown (10YR 5/8) extremely channery sandy loam; massive; friable; common fine roots; 60 percent rock fragments; strongly acid; clear smooth boundary.
R—38 inches; hard granite.

Range in Characteristics

Thickness of the solum: 14 to 38 inches
Depth to hard bedrock: 20 to 40 inches
Rock fragments: 15 to 30 percent in the A horizon, 35 to 75 percent in the Bw horizon, and 35 to 75 percent in the C horizon
Reaction: Very strongly acid to moderately acid

A horizon:
Hue—7.5YR or 10YR
Value—2 to 4
Chroma—2 to 4
Texture—fine sandy loam in the fine earth faction

Bw horizon:
Hue—7.5YR or 10YR
Value—3 to 6
Chroma—4 to 8
Texture—sandy loam, fine sandy loam, or loam in the fine earth fraction

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—sandy loam, fine sandy loam, or loam in the fine earth fraction

Cr horizon (where it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—sandy loam in the fine earth fraction

Purdy Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow or moderately slow
Physiography: Valley and Ridge province
Parent material: Slack water alluvium
Slope range: 0 to 3 percent

Associated Soils

- Cotaco soils are moderately well drained and are slightly higher on the landscape than Purdy soils
- Monongahela soils are moderately well drained, have a fragipan, and are slightly higher on the landscape than Purdy soils
- Unison soils are well drained, have more clay in the subsoil than Purdy soils, and are higher on the landscape
- Zoar soils are moderately well drained, have more clay in subsoil than Purdy soils, and are in similar landscape positions

Typical Pedon

Purdy silt loam, 0 to 3 percent slopes, 0.6 mile west of intersection of VA 638 and VA 621, about 1.6 miles southeast of intersection of VA 650 and VA 638:

Ap—0 to 12 inches; dark grayish brown (2.5Y 4/2) silt loam; moderate fine granular structure; friable, sticky and plastic; common fine roots; common fine distinct strong brown (7.5YR 4/4) masses of iron accumulations; very strongly acid; abrupt smooth boundary.
B1tg—12 to 29 inches; dark gray (N 4/0) clay; weak coarse subangular blocky structure; firm, sticky and plastic; few fine roots; few fine distinct clay films on faces of peds; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulations; very strongly acid; clear smooth boundary.
B2tg—29 to 40 inches; gray (10YR 5/1) clay; moderate fine subangular blocky structure; firm, sticky and plastic; common fine clay films on faces of peds;

common fine distinct yellowish brown (10YR 5/6) masses of iron accumulations; very strongly acid; clear smooth boundary.
C—40 to 62 inches; gray (5Y 5/1) clay; massive; firm, sticky and plastic; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulations; extremely acid.

Range in Characteristics

Thickness of the solum: 28 to 50 inches
Depth to hard bedrock: More than 60 inches
Reaction: Extremely acid to strongly acid

A horizon:
Hue—10YR, 2.5Y, or neutral
Value—4 or 5
Chroma—0 to 2
Texture—silt loam

Bt horizon:
Hue—10YR to 5Y or neutral
Value—4 or 5
Chroma—0 to 2
Texture—clay or silty clay

C horizon:
Hue—10YR to 5Y or neutral
Value—4, 5, or 6
Chroma—0 to 3
Texture—clay or clay loam

Sherando Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Rapid
Physiography: Valley and Ridge province
Parent material: Colluvium derived from quartzite and sandstone
Slope range: 2 to 15 percent

Associated Soils

• Cotaco soils are moderately well drained, have more rock fragments in the solum, and are in depressions
• Craigsville soils are well drained, are subject to frequent flooding, and are in positions adjacent to streams

Typical Pedon

Sherando cobbly fine sandy loam, 2 to 7 percent slopes, 0.3 mile northeast (70 degrees) of intersection of VA 667 and VA 611, about 1.1 mile southwest (200 degrees) of intersection of U.S. 211 and VA 611:

Ap—0 to 10 inches; brown (10YR 4/3) cobbly fine sandy loam; weak fine granular structure; friable; many very fine and fine roots; 25 percent cobbles; moderately acid; abrupt smooth boundary.
Bw1—10 to 15 inches; yellowish brown (10YR 5/6) cobbly sandy loam; weak fine subangular blocky structure; friable; many very fine and fine roots; 25 percent cobbles; strongly acid; abrupt smooth boundary.
Bw2—15 to 35 inches; yellowish brown (10YR 5/4) very cobbly sandy loam; weak very fine subangular blocky structure; friable; common very fine and fine roots; few very fine discontinuous pores; 45 percent gravel and cobbles; strongly acid; gradual wavy boundary.
C—35 to 62 inches; yellowish brown (10YR 5/4) very cobbly sandy loam; massive; friable; few very fine roots; 60 percent gravel and cobbles; strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Depth to hard bedrock: More than 72 inches
Rock fragments: 20 to 75 percent; weighted average of more than 35 percent in the particle size control section
Reaction: Extremely acid to moderately acid in the surface layer, unless limed, and very strongly acid or strongly acid in the subsoil

Ap horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Texture—fine sandy loam in the fine earth fraction

Bw horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 8
Texture—fine sandy loam or sandy loam in the fine earth fraction

C horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 8
Texture—sandy loam or loamy sand in the fine earth fraction

Sindion Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Physiography: Valley and Ridge province

Parent material: Alluvium derived from shale, sandstone, limestone, phyllite, granite, and basalt
Slope range: 0 to 3 percent

Associated Soils

• Combs and Huntington soils are well drained and are slightly higher on the landscape than Sindion soils, on flood plains

Typical Pedon

Sindion loam, 0 to 3 percent slopes, occasionally flooded, 0.3 mile south (180 degrees) of intersection of VA 642 and U.S. 340, about 0.4 mile northeast (50 degrees) of intersection of VA 639 and U.S. 340:

Ap—0 to 15 inches; very dark grayish brown (10YR 3/2) moist, brown (10YR 5/3) dry, loam; weak fine subangular blocky structure; friable; common fine roots; slightly acid; abrupt smooth boundary.
Bw1—15 to 19 inches; brown (10YR 4/3) loam; moderate medium subangular blocky structure; friable; few very fine roots; common fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulations; slightly acid; gradual wavy boundary.
Bw2—19 to 30 inches; brown (10YR 4/3) loam; moderate medium subangular blocky structure; friable; common fine distinct dark grayish brown (10YR 4/2) iron depletions and few medium distinct strong brown (7.5YR 4/6) masses of iron accumulations; neutral; clear wavy boundary.
Bw3—30 to 46 inches; dark grayish brown (10YR 4/2) loam; weak medium subangular blocky structure; friable; many medium distinct dark yellowish brown (10YR 4/6) masses of iron accumulations; moderately alkaline; gradual wavy boundary.
Cg—46 to 62 inches; grayish brown (2.5Y 5/2) loam; massive; friable; many medium prominent dark yellowish brown (10YR 4/6) masses of iron accumulations; moderately alkaline.

Range in Characteristics

Thickness of the solum: 30 to 60 inches or more
Depth to hard bedrock: More than 60 inches
Rock fragments: 0 to 10 percent in the A, Ap, and Bw horizons; 0 to 80 percent in the C horizon
Reaction: Slightly acid to moderately alkaline

Ap horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—2 or 3
Texture—loam

Bw horizon:
Hue—7.5YR to 5Y
Value—2 to 7
Chroma—1 to 6
Texture—loam or silt loam

C horizon (where it occurs):
Hue—7.5YR to 5Y
Value—2 to 7
Chroma—1 to 4
Texture—sandy loam or loam; stratification in some pedons

Cg horizon:
Hue—7.5YR to 5Y or neutral
Value—2 to 7
Chroma—0 to 2
Texture—loam or sandy loam

Sylco Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Physiography: Blue Ridge Mountains
Parent material: Residuum derived from metasedimentary rock
Slope range: 15 to 55 percent

Associated Soils

• Dekalb soils are well drained, are deeper to bedrock than Sylco soils, and are higher on the landscape
• Sylvatus soils are well drained, are deeper to bedrock than Sylco soils, and are in similar positions on the landscape

Typical Pedon

Sylco channery silt loam, in an area of Sylvatus-Sylco complex, 15 to 35 percent slopes, 0.4 mile northwest of intersection of VA 607 and VA 759, about 2.5 miles northeast of intersection of VA 609 and VA 606:

Oi—2 inches to 0; hardwood leaf litter, mainly oak.
A—0 to 3 inches; dark grayish brown (10YR 4/2) channery silt loam; weak fine granular structure; friable; many fine and medium and few coarse roots; 25 percent rock fragments; very strongly acid; abrupt smooth boundary.
Bw1—3 to 13 inches; yellowish brown (10YR 5/4) channery silt loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; many fine and medium and few coarse roots; few fine pores; 25 percent rock fragments; very strongly acid; clear smooth boundary.
Bw2—13 to 20 inches; yellowish brown (10YR 5/4) very channery silt loam; weak fine and medium subangular blocky structure; friable, slightly sticky

and slightly plastic; common fine and few coarse roots; few fine pores; 45 percent rock fragments; very strongly acid; clear smooth boundary.
Bw3—20 to 26 inches; yellowish brown (10YR 5/4) very channery silt loam; weak fine subangular blocky structure; friable; common fine roots; few fine silt coatings on rock fragments; 45 percent rock fragments; very strongly acid; clear smooth boundary.
C—26 to 33 inches; yellowish brown (10YR 5/4) extremely channery silt loam; massive; friable; few fine roots; 70 percent rock fragments; very strongly acid; abrupt smooth boundary.
R—33 inches; hard phyllite.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to hard bedrock: 20 to 40 inches
Rock fragments: 15 to 30 percent in the A horizon, 15 to 45 percent in the B horizon, and 40 to 70 percent in the C horizon
Reaction: Extremely acid to strongly acid

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 or 4
Texture—silt loam in the fine earth fraction

Bw horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 to 8
Texture—silt loam or loam in the fine earth fraction

C horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 to 8
Texture—silt loam or loam in the fine earth fraction

Sylvatus Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate
Physiography: Blue Ridge Mountains
Parent material: Residuum derived from metasediments of phyllite
Slope range: 15 to 55 percent

Associated Soils

• Dekalb soils are well drained, are deeper to bedrock, and are higher on the landscape than Sylvatus soils

• Sylco soils are well drained, are deeper to bedrock than Sylvatus soils, and are in similar positions on the landscape

Typical Pedon

Sylvatus channery silt loam, in an area of Sylvatus-Sylco complex, 15 to 35 percent slopes, 0.3 mile west of intersection of VA 607 and VA 759, about 2 miles northeast of intersection of VA 609 and VA 606:

Oi—2 inches to 0; hardwood leaf litter, mainly from oak.
A—0 to 5 inches; brown (10YR 4/3) channery silt loam; weak fine granular structure; friable, slightly sticky and slightly plastic; many fine and medium and few coarse roots; 20 percent rock fragments; very strongly acid; abrupt smooth boundary.
Bw—5 to 17 inches; yellowish brown (10YR 5/4) very channery silt loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; many fine and medium roots; 45 percent coarse fragments; very strongly acid; abrupt smooth boundary.
C—17 to 19 inches; yellowish brown (10YR 5/4) extremely channery silt loam; massive; friable, slightly sticky and slightly plastic; few fine roots; 70 percent coarse fragments; very strongly acid; abrupt smooth boundary.
R—19 inches; hard phyllite.

Range in Characteristics

Thickness of the solum: 10 to 18 inches
Depth to hard bedrock: 10 to 20 inches
Rock fragments: 15 to 75 percent in the A horizon, 25 to 80 percent in the Bw horizon, and 45 to 90 percent in the C horizon
Reaction: Extremely acid or very strongly acid

A horizon:
Hue—10YR
Value—2 to 5
Chroma—1 to 4
Texture—silt loam in the fine earth fraction

Bw horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 8
Texture—silt loam in the fine earth fraction

C horizon:
Hue—5YR to 10YR
Value—3 to 6
Chroma—1 to 8
Texture—silt loam in the fine earth fraction

Thurmont Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiography: Blue Ridge Mountain
Parent material: Colluvium derived from quartzite and granite
Slope range: 2 to 25 percent

Associated Soils

- Dyke soils are well drained, have a clayey subsoil, and are on lower, colluvial side slopes and benches
- Edgemont soils are well drained and are in higher, residual positions on the landscape
- Edneytown soils are well drained and are in higher, residual positions on the landscape
- Peaks soils are somewhat excessively drained, have more rock fragments in the solum than Thurmont soils, and are in higher, residual positions on the landscape

Typical Pedon

Thurmont fine sandy loam, 2 to 7 percent slopes, 0.6 mile west of intersection of VA 621 and VA 619, about 0.6 mile southwest of intersection of VA 638 and VA 621:

Ap—0 to 9 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.
Bt1—9 to 15 inches; brown (7.5YR 5/4) loam; weak fine subangular blocky structure; friable, slightly sticky and nonplastic; common fine roots; few fine pores; few distinct clay films on faces of peds; strongly acid; abrupt smooth boundary.
Bt2—15 to 35 inches; strong brown (7.5YR 5/6) clay loam; weak medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine roots; few fine pores; common fine distinct clay films on faces of peds; strongly acid; clear smooth boundary.
Bt3—35 to 48 inches; strong brown (7.5YR 5/8) clay loam; weak fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine roots; few fine pores; common fine distinct clay films on faces of peds; strongly acid; clear smooth boundary.
C—48 to 72 inches; strong brown (7.5YR 5/6) loam; massive; friable, slightly sticky and nonplastic; few faint clay films on faces of peds; common coarse distinct gray (10YR 5/2) iron depletions and few fine distinct yellowish red (5YR 4/6) and yellowish brown (10YR 5/6) masses of iron accumulations; 10 percent rock fragments; strongly acid.

Range in Characteristics

Thickness of the solum: 40 inches to more than 60 inches
Depth to hard bedrock: More than 60 inches
Rock fragments: 0 to 10 percent in the A horizon, 0 to 35 percent in the B horizon, and 0 to 10 percent in the C horizon
Reaction: Very strongly acid or strongly acid, unless limed

A horizon:
Hue—7.5YR to 2.5Y
Value—3 to 5
Chroma—2 to 6
Texture—fine sandy loam in the fine earth fraction

Bt horizon:
Hue—5YR or 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture—loam, clay loam, or sandy clay loam

BC horizon (where it occurs):
Hue—5YR or 7.5YR, or streaked in shades of red, yellow, brown, and gray
Value—4 to 6
Chroma—4 to 8
Texture—loam or sandy clay loam

Timberville Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiography: Valley and Ridge province
Parent material: Colluvial and alluvial material derived from limestone
Slope range: 2 to 7 percent

Associated Soils

- Lodi soils are well drained, formed in residuum derived from limestone, and are in adjacent, upland positions
- Carbo soils are well drained, formed in residuum derived from limestone, have bedrock at a depth of less then 40 inches, and are in upland positions adjacent to those of Timberville soils
- Oaklet soils are well drained, formed in residuum derived from limestone, and are in upland positions adjacent to those of Timberville soils

Typical Pedon

Timberville silt loam, 2 to 7 percent slopes, rarely flooded, about 1 mile southwest of intersection of U.S.

340 and VA 642, about 0.5 mile southwest of intersection of VA 638 and VA 639:

Ap—0 to 8 inches; dark brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine roots; 10 percent gravel; slightly acid; abrupt smooth boundary.

Bw—8 to 24 inches; dark yellowish brown (10YR 4/6) gravelly silty clay loam; weak fine subangular blocky structure; friable; common fine roots; few fine and medium pores; 20 percent gravel; slightly acid; clear smooth boundary.

2Bt1—24 to 42 inches; strong brown (7.5YR 4/6) (90 percent) and red (2.5YR 4/6) (10 percent) clay; moderate fine and medium angular blocky structure; friable, slightly sticky and slightly plastic; few fine roots; few fine pores; many distinct clay films on faces of peds; black (10YR 2/1) manganese stains; 5 percent gravel; moderately acid; clear smooth boundary.

2Bt2—42 to 68 inches; yellowish brown (10YR 5/8) clay; weak fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine pores; common distinct clay films on faces of peds; very strongly acid.

Range in Characteristics

Thickness of the solum: More than 60 inches
Depth to hard bedrock: More than 60 inches
Rock fragments: 0 to 10 percent in the surface layer and 0 to 60 percent in individual horizons in the solum
Reaction: Extremely acid to slightly acid

A horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 to 5
Texture—silt loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—silt loam, loam, or clay loam in the fine earth fraction

2Bt horizon:
Hue—5YR to 10YR
Value—4 or 5
Chroma—4 to 8
Texture—clay or clay loam

Tygart Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate
Physiography: Valley and Ridge province
Parent material: Alluvium derived from acid siltstone and shale
Slope range: 0 to 3 percent

Associated Soils

- Purdy soils are poorly drained and are in positions on the landscape similar to those of Tygart soils
- Cotaco soils are moderately well drained and are slightly higher than Tygart soils on the landscape
- Zoar soils are moderately well drained and are slightly higher than Tygart soils on the landscape

Typical Pedon

Tygart silt loam, 0 to 3 percent slopes, 1.4 miles northeast (40 degrees) of intersection of U.S. 211 and VA 654, about 0.9 mile west (280 degrees) of intersection of VA 611 and VA 605:

Ap—0 to 9 inches; dark brown (10YR 4/3) silt loam; moderate fine granular structure; friable, slightly sticky and slightly plastic, common fine roots; strongly acid; abrupt smooth boundary.

Bt1—9 to 17 inches; brown (10YR 5/3) silty clay; weak fine and medium subangular blocky structure; firm, slightly sticky and slightly plastic; common fine distinct clay films on faces of peds; common fine distinct gray (5Y 5/1) iron depletions; strongly acid; clear smooth boundary.

Bt2g—17 to 32 inches; gray (10YR 5/1) clay; moderate fine and medium angular blocky structure; firm, sticky and plastic; few fine roots; many fine distinct clay films on faces of peds; few medium distinct yellowish brown (10YR 5/8) masses of iron accumulations; strongly acid; clear smooth boundary.

Bt3g—32 to 45 inches; light grayish brown (2.5Y 6/2) clay; moderate fine and medium angular blocky structure; firm, sticky and plastic; many fine distinct clay films on faces of peds; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulations; strongly acid; clear smooth boundary.

Cg—45 to 62 inches; light grayish brown (2.5Y 6/2) silty clay loam; few fine distinct yellowish brown (10YR 5/6); massive; very firm, sticky and plastic; common fine distinct yellowish brown (10YR 5/6) masses of iron accumulations; very strongly acid.

Range in Characteristics

Thickness of the solum: 35 to 60 inches
Depth to hard bedrock: More than 60 inches
Rock fragments: 0 to 3 percent throughout

Reaction: Very strongly acid to moderately acid in the upper part of the solum and extremely acid to strongly acid in the lower part of the solum and in the substratum

A horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 or 3
Texture—silt loam

Bt (upper) horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—3 to 8 and mottled
Texture—clay loam, silty clay, or clay

Bt (lower) horizon:
Hue—10YR, 2.5Y, or neutral
Value—5 to 7
Chroma—0 to 2 and mottled
Texture—clay loam, silty clay, or clay

C horizon:
Hue—10YR, 2.5Y, or neutral
Value—4 to 7
Chroma—0 to 2
Texture—silty clay loam, silty clay, or clay; in some pedons, their gravelly analogs below a depth of 50 inches

Unison Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Physiography: Valley and Ridge province
Parent material: Alluvium and colluvium derived from acid crystalline rocks
Slope range: 2 to 25 percent

Associated Soils

- Braddock soils are well drained, have a red subsoil, and are in positions on the landscape similar to those of Unison soils
- Thurmont soils are well drained, have less clay in the subsoil than Unison soils, and are on adjacent, colluvial benches and side slopes
- Monongahela soils are moderately well drained, have a fragipan at a depth of 18 to 30 inches, have less clay than Unison soils, and are slightly higher on the landscape

Typical Pedon

Unison fine sandy loam, 2 to 7 percent slopes, 0.8 mile west of intersection of VA 621 and VA 638, about 1.6 miles southeast of intersection of VA 616 and U.S. 340:

Ap—0 to 10 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; friable; common fine roots; 1 percent rock fragments; moderately acid; abrupt smooth boundary.
BA—10 to 16 inches; yellowish brown (10YR 5/4) clay loam; weak fine subangular blocky structure; friable, slightly sticky; few fine roots; few fine faint clay films on faces of peds; moderately acid; abrupt smooth boundary.
Bt1—16 to 30 inches; strong brown (7.5YR 5/6) (98 percent) and yellowish red (5YR 5/6) (2 percent) clay loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; few fine roots; few fine pores; common fine distinct clay films on faces of peds; strongly acid; clear smooth boundary.
Bt2—30 to 48 inches; strong brown (7.5YR 5/6) (98 percent) reddish brown (2.5YR 4/4) (2 percent) clay; moderate fine and medium subangular blocky structure; firm, slightly sticky and slightly plastic; few fine roots; few fine pores; common fine distinct clay films on faces of peds; 2 percent rock fragments; strongly acid; clear smooth boundary.
BC—48 to 64 inches; strong brown (7.5YR 5/6) dark red (2.5YR 3/6) and yellowish brown (10YR 5/6) clay loam; weak fine subangular blocky structure; friable, slightly sticky and slightly plastic; few fine clay films on faces of peds; 5 percent rock fragments; strongly acid; clear smooth boundary.
C—64 to 72 inches; strong brown (7.5YR 5/6), dark red (2.5YR 3/6), and light gray (10YR 7/2) clay loam; massive; slightly sticky and slightly plastic; 2 percent rock fragments; strongly acid.

Range in Characteristics

Thickness of the solum: 30 inches to more than 60 inches
Depth to hard bedrock: More than 72 inches
Rock fragments: 0 to 10 percent in the A horizon, 0 to 15 percent in the Bt horizon, and 0 to 50 percent in the BC and C horizons
Reaction: Very strongly acid to moderately acid, unless limed

A horizon:
Hue—7.5YR or 10YR
Value—3 or 5
Chroma—3 to 6
Texture—fine sandy loam

BA horizon (where it occurs):
Hue—7.5YR or 10YR

Value—4 or 5
Chroma—3 to 6
Texture—clay loam

Bt horizon:
Hue—5YR to 10YR
Value—4 or 5
Chroma—3 to 8
Texture—clay loam or clay

BC horizon:
Hue—2.5YR to 7.5YR
Value—6 to 8
Chroma—3 to 6
Texture—clay or clay loam

C horizon:
Hue—2.5YR to 7.5YR
Value—4 to 8
Chroma—3 to 6
Texture—loam or clay loam

Weikert Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately rapid
Physiography: Valley and Ridge province
Parent material: Residuum derived from shale and sandstone
Slope range: 15 to 70 percent

Associated Soils

- Berks and Gilpin soils are well drained, have bedrock at a depth of 20 to 40 inches, and are in positions on the landscape similar to those of Weikert soils
- Dekalb soils are well drained, have bedrock at a depth of 20 to 40 inches, and are higher than Weikert soils on the landscape
- Jefferson soils are well drained, have bedrock at a depth of more than 60 inches, have fewer rock fragments than Weikert soils, and are on colluvial foot slopes
- Laidig soils are well drained, have bedrock at a depth of more than 60 inches, have a fragipan, and are on colluvial foot slopes

Typical Pedon

Weikert channery silt loam, in an area of Weikert-Berks complex, 35 to 55 percent slopes, 2.3 miles northwest (350 degrees) of intersection of VA 663 and U.S. 340, about 2.5 miles northeast (40 degrees) of intersection of VA 684 and VA 717:

Oi—1 inch to 0; hardwood leaf litter, mainly from oaks.
A—0 to 3 inches; dark brown (10YR 3/3) channery silt loam; weak fine granular structure; friable; many fine and common coarse roots; 20 percent rock fragments; strongly acid; abrupt smooth boundary.
Bw—3 to 14 inches; yellowish brown (10YR 5/6) very channery silt loam; weak fine subangular blocky structure; friable; common fine and few coarse roots; 55 percent rock fragments; strongly acid; clear smooth boundary.
C—14 to 18 inches; yellowish brown (10YR 5/6) extremely channery silt loam; massive; friable; few fine roots; 65 percent rock fragments; strongly acid; clear irregular boundary.
R—18 inches; fractured shale.

Range in Characteristics

Thickness of the solum: 8 to 20 inches
Depth to hard bedrock: 10 to 20 inches
Rock fragments: 15 to 35 percent in the A horizon, 35 to 60 percent in the B horizon, and 60 to 85 percent in the C horizon
Reaction: Very strongly acid to moderately acid

A horizon:
Hue—7.5YR or 10YR
Value—3 or 5
Chroma—2 to 4
Texture—silt loam in the fine earth fraction

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—silt loam in the fine earth fraction

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture—silt loam in the fine earth fraction

Wheeling Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Rapid
Physiography: Valley and Ridge province
Parent material: Silty or loamy alluvium
Slope range: 2 to 7 percent

Associated Soils

- Huntington soils are well drained, have a thick, dark surface layer and no argillic horizon, and are on flood plains adjacent to the river
- Monongahela soils are moderately well drained, have

a fragipan, and are slightly higher than Wheeling soils on the landscape
• Unison soils have a clayey subsoil and are higher than Wheeling soils on the landscape, on terraces

Typical Pedon

Wheeling fine sandy loam, 2 to 7 percent slopes, 1 mile east of intersection of U.S. 340 and VA 613, about 2 miles northeast of intersection of U.S. 340 and VA 650:

Ap—0 to 7 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; friable; many fine roots; moderately acid; abrupt smooth boundary.
BA—7 to 15 inches; strong brown (7.5YR 4/6) loam; weak fine subangular blocky structure; friable; common fine roots; common fine pores; moderately acid; clear smooth boundary.
Bt—15 to 45 inches; strong brown (7.5YR 4/6) loam; weak fine and medium subangular blocky structure; friable; few fine roots; common fine pores; slightly sticky and slightly plastic; common fine distinct clay films on faces of peds and in pores; moderately acid; clear smooth boundary.
BC—45 to 72 inches; strong brown (7.5YR 4/6) fine sandy loam; weak course subangular blocky structure; friable; few fine roots; few fine pores; moderately acid.

Range in Characteristics

Thickness of the solum: 40 inches to more than 60 inches
Depth to hard bedrock: More than 72 inches
Reaction: Very strongly acid to slightly acid

A horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 4
Texture—fine sandy loam

BA horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—loam or silt loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam or loam

BC horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—very fine sandy loam or sandy loam

C horizon (where it occurs):
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—very fine sand to sand; in some pedons, a thin strata of fine sandy loam and loam

Zepp Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Physiography: Massanutten Mountains
Parent material: Colluvium derived from sandstone and shale
Slope range: 15 to 55 percent

Associated Soils

• Dekalb soils are moderately deep and well drained, have more rock fragments in the solum than Zepp soils, and are on higher side slopes
• Drall soils are excessively drained, have more rock fragments in the solum and are coarser textured than Zepp soils, and are on side slopes and summits of mountains

Typical Pedon

Zepp channery sandy loam, 35 to 55 percent slopes, extremely stony, about 0.2 mile north (20 degrees) of Pitt Spring and 2.4 miles south (210 degrees) of a radio tower, in the George Washington National Forest:

Oi—3 inches to 0; hardwood leaf litter, mostly oak.
A—0 to 4 inches; dark grayish brown (10YR 4/2) channery sandy loam; weak fine granular structure; friable; many fine and medium and few coarse roots; 20 percent rock fragments; very strongly acid; abrupt smooth boundary.
BA—4 to 9 inches; yellowish brown (10YR 5/4) channery sandy loam; weak fine granular structure; friable; many fine and medium and few coarse roots; few very fine pores; 15 percent coarse fragments; very strongly acid; abrupt smooth boundary.
Bt1—9 to 19 inches; yellowish brown (10YR 5/6) channery loam; weak fine subangular blocky structure; friable, slightly sticky and nonplastic; common fine and medium roots; common fine pores; few distinct clay films on faces of peds; 15

percent rock fragments; very strongly acid; clear smooth boundary.
Bt2—19 to 29 inches; strong brown (7.5YR 5/6) channery loam; moderate fine subangular blocky structure; friable, sticky and nonplastic; common fine roots; common fine pores; many distinct clay films on faces of peds; 15 percent coarse fragments; very strongly acid; clear smooth boundary.
Bt3—29 to 44 inches; strong brown (7.5YR 4/6) channery loam; weak fine subangular blocky structure; friable, slightly sticky and nonplastic; few fine roots; common fine pores; common distinct clay films on faces of peds; 20 percent rock fragments; very strongly acid; abrupt smooth boundary.
2Bt4—44 to 56 inches; yellowish red (5YR 4/6) (95 percent) and reddish yellow (7.5YR 6/6) (5 percent) channery clay loam; moderate fine and medium subangular blocky structure; friable, sticky and nonplastic; few fine roots; many distinct clay films on faces of peds; 15 percent coarse fragments; very strongly acid; clear smooth boundary.
2C—56 to 72 inches; yellowish red (5YR 5/6) very channery clay loam; massive; friable, slightly sticky and nonplastic; 35 percent rock fragments; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to hard bedrock: More than 60 inches
Rock fragments: 15 to 45 percent of individual horizons in the solum and 20 to 70 percent in the substratum
Reaction: Extremely acid to strongly acid

A horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture—sandy loam in the fine earth fraction

BA horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—sandy loam in the fine earth fraction

Bt horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loam in the fine earth fraction

2Bt horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture—clay loam in the fine earth fraction

2C horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loam or clay loam in the fine earth fraction

Zoar Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Slow or moderately slow
Physiography: Valley and Ridge province
Parent material: Alluvial material derived from acid sandstone and shale
Slope range: 0 to 3 percent

Associated Soils

• Cotaco soils are moderately well drained, have less clay in the subsoil, and are in positions on the landscape similar to those of Zoar soils
• Purdy soils are poorly drained and are in positions on the landscape similar to those of Zoar soils
• Tygart soils are somewhat poorly drained and are in positions on the landscape similar to those of Zoar soils

Typical Pedon

Zoar silt loam, 0 to 3 percent slopes, 0.9 mile west (255 degrees) of junction of U.S. 340 and VA 662, about 2 miles west (270 degrees) of intersection of VA 605 and VA 662:

Ap—0 to 10 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; few fine roots; strongly acid; abrupt smooth boundary.
Bt1—10 to 21 inches; yellowish brown, (10YR 5/6) silty clay loam; moderate fine and medium subangular blocky structure; friable; few fine and medium discontinuous pores; few fine roots; few distinct clay films on faces of pedons; strongly acid; clear smooth boundary.
Bt2—21 to 36 inches; yellowish brown (10YR 5/6) silty clay; firm, slightly sticky and slightly plastic; few fine pores; many distinct clay films on faces of peds; few fine faint, light olive brown (2.5Y 5/4) and brown (10YR 5/3) masses of iron

accumulations and grayish brown (2.5Y 5/2) iron depletions; strongly acid; clear smooth boundary.

Bt3—36 to 50 inches; yellowish brown (10YR 5/6) silty clay; moderate medium subangular blocky structure; firm, slightly sticky and plastic; few fine pores; many distinct clay films on faces of peds; common fine distinct gray (10YR 5/1) iron depletions and few fine distinct strong brown (7.5YR 5/6) masses of iron accumulations; strongly acid; clear smooth boundary.

C—50 to 67 inches; dark yellowish brown (10YR 4/6) silty clay loam; massive; friable; common medium distinct gray (10YR 5/1) iron depletions; strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 50 inches

Depth to hard bedrock: More than 48 inches

Rock fragments: 0 to 3 percent in the A, B, and C horizons

Reaction: Very strongly acid or strongly acid, unless limed

A horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 4
Texture—silt loam

Bt horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—6 to 8
Texture—silty clay and silty clay loam

C horizon:
Hue—5YR to 10YR
Value—4 to 7
Chroma—1 to 6
Texture—silty clay loam

Formation of the Soils

Soils are formed through the interaction of five major factors. These factors are climate, plant and animal life, parent material, relief, and time. The relative influence of each factor usually varies from place to place. Local variations in soils are a result of differences in kind of parent material, in topography and in drainage. In some places one factor may dominate the formation of a soil and determine most of its properties. However, it is the combined action of the five factors that determines the character of each soil.

Factors of Soil Formation

The soils in Page County formed as a result of the interaction of five major factors of soil formation—climate, plant and animal life, parent material, relief, and time. Each factor modifies the effect of the others. These influences have been carefully observed and analyzed

Climate

The humid, continental climate of Page County is marked by extreme, seasonal changes of temperature. Average annual precipitation is about 39 inches, and average air temperature is about 53 degrees F. Adequate precipitation and warm temperature are conditions for rapid decomposition of organic matter and limited accumulation of organic matter in the surface layer. For more detailed information on climate, see the section under "General Nature of the County."

Plant and Animal Life

All living organisms are important in soil formation. These include vegetation, animals, bacteria, and fungi. Vegetation is generally responsible for the amount of organic matter, color of the surface layer, and the amount of nutrients available to plants. Earthworms, cicadas, and burrowing animals are examples of animal life that helps to keep the soil open and porous. Bacteria and fungi decompose the vegetation and release nutrients for plant food. In Page County, the native forests are the living organisms that have had the greatest influence on soil formation. Human activities include clearing the forest and cultivating the soil. They have changed the physical and chemical make up of the surface layer. They have caused other important changes as well. The upper layers of the soil have been mixed in forming a plow layer. Cultivating strongly sloping soils has caused accelerated erosion. Liming and fertilizing have changed the content of plant nutrients, especially in the upper layers.

Parent Material

Parent material is the unconsolidated mass from which the soils are formed. It is largely responsible for the mineralogical and chemical composition of the soil and the rate at which soil-forming processes take place.

In Page County, the soils formed in three kinds of parent material: residuum, alluvium, and colluvium. Some of the residual soils derived from shale, siltstone, limestone, sandstone, and greenstone. Soils that formed in residuum derived from shale, limestone, and greenstone are the most extensive in the county. They also have a wide range of characteristics. Berks and Weikert soils formed in residuum of shale and siltstone. Lodi and Carbo soils formed in residuum of limestone. Typically, they have a silty surface layer and a clayey subsoil. Drall soils formed in residuum of sandstone. They are coarse textured. Catoctin and Fauquier soils formed in residuum of greenstone.

Alluvium is commonly of recent origin or is currently being deposited. Craigsville, Monongahela, Huntington, and Cotaco soils formed in alluvium. They vary widely in texture and development.

Colluvium is dominantly along lower mountain slopes. They are primarily coarse textured or medium textured. Examples of soils that formed in colluvium are Jefferson and Laidig soils.

Relief

Several factors largely have determined relief in Page County. They are the underlying geologic formations, the geologic history of the general region,

and the effects of dissection by rivers and streams. Relief influences soil formation through its effect on drainage, erosion, temperature, and plant cover.

Page County is in the Valley and Ridge and Blue Ridge physiographic provinces of the Appalachian Highlands. It is in the Shenandoah River drainage system. It is bordered by the Massanutten Mountains on the west and the Blue Ridge Mountains on the east. The mountains overlie such resistant rocks as sandstone, metabasalt, and quartzite. The valley relief is also affected by the underlying geology. Areas of the valley underlain by shale and limestone have the least relief.

Most upland areas are well drained. Soils on terraces and flood plains range from well drained to poorly drained.

Time

In the formation of soils, time was required for changes to take place in the parent materials. Young soils have little or no horizon development. Old soils have strongly developed horizons.

The soils that formed in recent alluvium have been in place only a relatively short time. They show little or no development. The oldest soils in Page County formed in residuum of easily weathered carbonate rock. In general, these soils are in less sloping, relatively stable positions.

References

(1) American Association of State Highway and Transportation Officials. 1986. Standard specifications for highway materials and methods of sampling and testing. Ed. 14, 2 vols.

(2) American Society for Testing and Materials. 1993. Standard classification of soils for engineering purposes. ASTM Stand. D 2487.

(3) United States Department of Agriculture, Soil Conservation Service. 1975. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. U.S. Dep. Agric. Handb. 436.

(4) United States Department of Agriculture, Soil Conservation Service. 1992. Keys to soil taxonomy. 5th ed. Soil Surv. Staff, Soil Manage. Support Serv. Tech. Monogr. 19.

(5) United States Department of Agriculture, Soil Conservation Service. 1993. Soil survey manual. Soil Surv. Staff, U.S. Dep. Agric. Handb. 18.

Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Back slope. The geomorphic component that forms the steepest inclined surface and principal element of many hillsides. Back slopes in profile are commonly steep, are linear, and may or may not include cliff segments.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Channery soil material. Soil material that is, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as

much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained.* These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.
Erosion (geologic).— Erosion caused by geologic

processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated).— Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Excess lime (in tables). Excess carbonates in the soil that restrict the growth of some plants.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*

Fine textured soil. Sandy clay, silty clay, or clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Foot slope. The inclined surface at the base of a hill.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Greenstone. A low-grade, metamorphic basalt that occurs in the Catoctin Formation in Page County.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter

represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Marl. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For

example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan.*

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Quartzite, metamorphic. Rock consisting mainly of quartz that formed through recrystallization of quartz-rich sandstone or chert.

Quartzite, sedimentary. Very hard but unmetamorphosed sandstone consisting chiefly of quartz grains.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been

removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sandy soil. Sand or loamy sand.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Shallow soil. A soil that is 10 to 20 inches deep over bedrock or to other material that restricts the penetration of plant roots.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder slope. The uppermost inclined surface at the top of a hillside. It is the transition zone from the back slope to the summit of a hill or mountain. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or

management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 2 percent
Gently sloping	2 to 7 percent
Strongly sloping	7 to 15 percent
Moderately steep	15 to 25 percent
Steep	25 to 35 percent
Very steep	35 percent and higher

Classes for complex slopes are as follows:

Nearly level	0 to 2 percent
Undulating	2 to 7 percent
Gently rolling	7 to 15 percent
Hilly	15 to 25 percent
Steep	25 to 35 percent
Very steep	35 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or

massive (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus. Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Toxicity (in tables). Excessive amount of toxic substances, such as sodium or sulfur, that severely hinder establishment of vegetation or severely restrict plant growth.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Unstable fill (in tables). Risk of caving or sloughing on banks of fill material.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1961-90 at Luray, Virginia)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	Maximum temperature higher than	Minimum temperature lower than	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January	42.2	18.1	30.2	69	-7	30	2.73	1.21	4.03	5	8.6
February	45.7	20.4	33.1	73	-1	47	2.64	0.92	4.06	5	8.5
March	55.8	29.3	42.5	83	8	168	2.98	1.72	4.11	6	4.1
April	66.3	38.3	52.3	89	20	377	2.96	1.47	4.26	6	0.5
May	75.3	47.4	61.4	91	28	654	3.74	2.15	5.16	7	0.0
June	82.4	55.1	68.7	94	37	853	3.44	1.95	4.76	6	0.0
July	85.8	59.3	72.6	97	44	996	3.71	2.45	4.86	7	0.0
August	84.3	58.3	71.3	95	42	959	3.54	2.07	4.84	6	0.0
September	78.1	51.5	64.8	94	33	732	3.48	1.87	4.89	5	0.0
October	67.9	39.8	53.9	86	21	432	3.53	1.14	5.49	5	0.2
November	57.8	32.1	44.9	79	11	200	3.52	1.41	5.30	5	1.8
December	46.4	23.1	34.7	72	0	59	2.82	0.94	4.36	5	5.0
Yearly:											
Average	65.7	39.4	52.5	---	---	---	---	---	---	---	---
Extreme	105	-10	---	98	-8	---	---	---	---	---	---
Total	---	---	---	---	---	5,507	39.09	33.37	43.79	68	28.8

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1961-90 at Luray, Virginia)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 17	May 5	May 23
2 years in 10 later than--	Apr. 13	Apr. 30	May 17
5 years in 10 later than--	Apr. 5	Apr. 20	May 7
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 16	Oct. 7	Sept. 25
2 years in 10 earlier than--	Oct. 22	Oct. 12	Oct. 30
5 years in 10 earlier than--	Nov. 1	Oct. 20	Oct. 7

Table 3. Growing Season

(Recorded in the period 1961-90 at Luray, Virginia)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	189	163	133
8 years in 10	196	170	140
5 years in 10	208	183	153
2 years in 10	220	196	166
1 year in 10	227	202	172

Table 4.--Acreage and Proportionate Extent of the Soils, General Soil Map

Map unit number	Composition	Acreage	Percent
1	Lodi-Carbo-Oaklet	19,225	10
	Lodi	12,303	64
	Carbo	2,870	15
	Oaklet	2,182	12
	Rock outcrop	1,565	8
	Timberville	260	1
	Pits, bedrock	45	<1
2	Dekalb-Massanutten-Rock outcrop	15,688	8
	Dekalb	4,235	27
	Massanutten	4,145	27
	Rock outcrop	2,684	17
	Drall	1,610	10
	Jefferson	1,552	10
	Zepp	1,462	9
3	Weikert-Laidig-Berks	28,931	14
	Weikert	9,440	31
	Laidig	9,620	35
	Berks	7,288	25
	Gilpin	1,516	5
	Chilhowie	627	2
	Edom	440	2
4	Thurmont	11,287	6
	Thurmont	11,259	100
5	Edgemont-Dekalb	14,063	7
	Edgemont	7,640	54
	Dekalb	5,825	42
	Rock outcrop	598	4
6	Sylvatus-Sylco	14,891	7
	Sylvatus	8,935	60
	Sylco	5,956	40
7	Edneytown-Peaks	16,301	8
	Edneytown	11,523	71
	Peaks	4,695	29
8	Catoctin-Myersville-Fauquier	24,262	12
	Catoctin	9,235	39
	Myersville	7,453	30
	Fauquier	7,371	31

Table 4.--Acreage and Proportionate Extent of the Soils, General Soil Map- Continued

Map unit number	Composition	Acreage	Percent
9	Braddock-Monongahela-Unison	40,691	20
	Braddock	23,036	56
	Monongahela	5,630	15
	Unison	5,088	13
	Dyke	2,410	6
	Cotaco	1,898	5
	Tygart	934	2
	Zoar	921	2
	Purdy	428	1
	Maurertown	256	<1
	Urban land	57	<1
10	Sherando	4,026	2
	Sherando	4,026	100
11	Craigsville-Huntington	11,035	6
	Craigsville	2,712	35
	Huntington	1,687	20
	Sindion	1,590	15
	Combs	1,486	14
	Biltmore	1,078	10
	Wheeling	630	6

Table 5.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
1C	Berks-Weikert complex, 7 to 15 percent slopes	1,980	1.0
2A	Biltmore fine sandy loam, 0 to 4 percent slopes, occasionally flooded	1,078	0.5
3B	Braddock loam, 2 to 7 percent slopes	8,493	4.2
3C	Braddock loam, 7 to 15 percent slopes	7,395	3.7
3D	Braddock loam, 15 to 25 percent slopes	1,939	1.0
4B	Braddock cobbly loam, 2 to 7 percent slopes	1,039	0.5
4C	Braddock cobbly loam, 7 to 15 percent slopes	2,023	1.0
4D	Braddock cobbly loam, 15 to 25 percent slopes	2,061	1.0
5C	Braddock-Urban land complex, 2 to 15 percent slopes	143	0.1
6C	Carbo-Rock outcrop complex, 2 to 15 percent slopes	1,198	0.6
6E	Carbo-Rock outcrop complex, 15 to 35 percent slopes	2,281	1.1
7C	Catoctin silt loam, 7 to 15 percent slopes	699	0.3
7D	Catoctin silt loam, 15 to 35 percent slopes	1,831	0.9
8F	Catoctin-Rock outcrop complex, 55 to 70 percent slopes, extremely stony	812	0.4
9C	Chilhowie silty clay loam, 7 to 15 percent slopes	155	0.1
9D	Chilhowie silty clay loam, 15 to 25 percent slopes	472	0.2
10A	Combs fine sandy loam, 0 to 3 percent slopes, occasionally flooded	1,486	0.7
11B	Cotaco loam, 2 to 7 percent slopes	1,898	0.9
12A	Craigsville cobbly sandy loam, 0 to 4 percent slopes, frequently flooded	2,712	1.4
13C	Dekalb channery sandy loam, 2 to 15 percent slopes, very stony	88	*
13D	Dekalb channery sandy loam, 15 to 35 percent slopes, very stony	215	0.1
13E	Dekalb channery sandy loam, 35 to 55 percent slopes, very stony	858	0.4
14E	Dekalb channery sandy loam, 35 to 55 percent slopes, extremely stony	1,821	0.9
14F	Dekalb channery sandy loam, 55 to 70 percent slopes, extremely stony	180	0.1
15F	Dekalb-Edgemont-Rock outcrop complex, 15 to 70 percent slopes, extremely stony	3,987	2.0
16B	Dyke loam, 2 to 7 percent slopes	781	0.4
16C	Dyke loam, 7 to 15 percent slopes	1,629	0.8
17C	Edgemont-Dekalb complex, 2 to 15 percent slopes, very stony	382	0.2
17D	Edgemont-Dekalb complex, 15 to 35 percent slopes, very stony	3,910	2.0
17E	Edgemont-Dekalb complex, 35 to 55 percent slopes, very stony	5,784	3.0
18C	Edneytown loam, 2 to 15 percent slopes	559	0.3
18D	Edneytown loam, 15 to 35 percent slopes	6,584	3.3
18E	Edneytown loam, 35 to 55 percent slopes	1,561	0.8
19C	Edom silty clay loam, 7 to 15 percent slopes	291	0.1
19D	Edom silty clay loam, 15 to 25 percent slopes	149	0.1
20B	Fauquier silt loam, 2 to 7 percent slopes	41	*
20C	Fauquier silt loam, 7 to 15 percent slopes	683	0.3
20D	Fauquier silt loam, 15 to 25 percent slopes	1,610	0.8
20E	Fauquier silt loam, 25 to 35 percent slopes	1,277	0.6
21C	Fauquier silt loam, 7 to 15 percent slopes, very stony	117	0.1
21D	Fauquier silt loam, 15 to 35 percent slopes, very stony	3,643	1.8
22C	Gilpin silt loam, 2 to 15 percent slopes	614	0.3
23D	Gilpin silt loam, 15 to 35 percent slopes, very stony	738	0.4
23E	Gilpin silt loam, 35 to 55 percent slopes, very stony	164	0.1
24A	Huntington loam, 0 to 3 percent slopes, occasionally flooded	1,687	0.8
25C	Jefferson fine sandy loam, 2 to 15 percent slopes	261	0.1
25D	Jefferson fine sandy loam, 15 to 35 percent slopes	167	0.1
25E	Jefferson fine sandy loam, 35 to 55 percent slopes	118	0.1
26E	Jefferson fine sandy loam, 35 to 55 percent slopes, very stony	1,006	0.5
27C	Laidig channery loam, 2 to 15 percent slopes	2,062	1.0
28C	Laidig channery loam, 2 to 15 percent slopes, very stony	2,123	1.1
28D	Laidig channery loam, 15 to 35 percent slopes, very stony	3,216	1.6
28E	Laidig channery loam, 35 to 55 percent slopes, very stony	2,219	1.1
29B	Lodi silt loam, 2 to 7 percent slopes	3,149	1.6
29C	Lodi silt loam, 7 to 15 percent slopes	6,101	3.0
29D	Lodi silt loam, 15 to 25 percent slopes	2,722	1.4
29E	Lodi silt loam, 25 to 35 percent slopes	331	0.2
30C	Massanutten channery loam, 2 to 15 percent slopes	90	*
31C	Massanutten channery loam, 2 to 15 percent slopes, very stony	299	0.1
31D	Massanutten channery loam, 15 to 35 percent slopes, very stony	808	0.4
31E	Massanutten channery loam, 35 to 55 percent slopes, very stony	2,948	1.5

See footnote at end of table.

Table 5.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
32A	Maurertown silt loam, 0 to 2 percent slopes	256	0.1
33B	Monongahela loam, 2 to 7 percent slopes	3,465	1.7
33C	Monongahela loam, 7 to 15 percent slopes	2,165	1.1
34C	Myersville-Catoctin complex, 2 to 15 percent slope, very stony	758	0.4
34D	Myersville-Catoctin complex, 15 to 35 percent slopes, very stony	7,630	3.8
34E	Myersville-Catoctin complex, 35 to 55 percent slopes, very stony	2,252	1.1
35D	Myersville-Catoctin complex, 15 to 35 percent slopes, extremely stony	359	0.2
35E	Myersville-Catoctin complex, 35 to 55 percent slopes, extremely stony	2,550	1.3
36B	Oaklet silt loam, 2 to 7 percent slopes	600	0.3
36C	Oaklet silt loam, 7 to 15 percent slopes	146	0.1
37C	Oaklet Carbo complex, 2 to 15 percent slopes, very rocky	966	0.5
37E	Oaklet-Carbo complex, 15 to 35 percent slopes, very rocky	1,426	0.7
38D	Peaks-Edneytown complex, 15 to 35 percent slopes, extremely stony	1,772	0.9
38E	Peaks-Edneytown complex, 35 to 55 percent slopes, extremely stony	4,062	2.0
38F	Peaks-Edneytown complex, 55 to 70 percent solpes, extremely stony	1,213	0.6
39F	Peaks-Rock outcrop complex, 55 to 70 percent slopes, extremely stony	550	0.3
41A	Purdy silt loam, 0 to 3 percent slopes	428	0.2
42F	Rock outcrop-Drall-Dekalb complex, 15 to 70 percent slopes	5,367	2.7
43B	Sherando cobbly fine sandy loam, 2 to 7 percent slopes	3,239	1.6
43C	Sherando cobbly fine sandy loam, 7 to 15 percent slopes	787	0.4
44A	Sindion loam, 0 to 3 percent slopes, occasionally flooded	1,590	0.8
45D	Sylvatus-Sylco complex, 15 to 35 percent slopes	4,923	2.5
45E	Sylvatus-Sylco complex, 35 to 55 percent slopes	9,968	5.0
46B	Thurmont fine sandy loam, 2 to 7 percent slopes	2,456	1.2
46C	Thurmont fine sandy loam, 7 to 15 percent slopes	4,831	2.4
46D	Thurmont fine sandy loam, 15 to 25 percent slopes	3,972	2.0
47B	Timberville silt loam, 2 to 7 percent slopes, rarely flooded	260	0.1
48A	Tygart silt loam, 0 to 3 percent slopes	934	0.5
49B	Unison fine sandy loam, 2 to 7 percent slopes	1,357	0.7
49C	Unison fine sandy loam, 7 to 15 percent slopes	2,737	1.4
49D	Unison fine sandy loam, 15 to 25 percent slopes	994	0.5
50D	Weikert-Berks complex, 15 to 35 percent slopes	8,913	4.4
50E	Weikert-Berks complex, 35 to 55 percent slopes,	5,083	2.5
51F	Weikert channery silt loam, 55 to 70 percent slopes	752	0.4
52B	Wheeling fine sandy loam, 2 to 7 percent slopes	630	0.3
53D	Zepp channery sandy loam, 15 to 35 percent slopes, very stony	739	0.4
53E	Zepp channery sandy loam, 35 to 55 percent slopes, very stony	251	0.1
54E	Zepp channery sandy loam, 35 to 55 percent slopes, extremely stony	472	0.2
55A	Zoar silt loam, 0 to 3 percent slopes	921	0.5
	Water	1,852	0.9
	Pits, quarry	106	0.1
	Total	200,400	100.0

* Less than 0.1 percent.

Table 6.--Land Capability Classes and Yields Per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Soil name and map symbol	Land capability	Corn	Corn silage	Wheat	Barley	Alfalfa hay	Grass-legume hay	Pasture
		Bu	Tons	Bu	Bu	Tons	Tons	AUM*
1C---------- Berks-Weikert	IVe	66	---	28	---	2.5	2.3	4.8
2A---------- Biltmore	IIw	100	25	---	---	---	---	8.0
3B---------- Braddock	IIe	120	25	50	---	---	5.0	3.3
3C---------- Braddock	IIIe	115	23	45	---	---	4.5	2.0
3D---------- Braddock	IVe	100	20	40	---	---	4.0	10.6
4B---------- Braddock	IIIs	90	18	45	---	---	4.5	12.0
4C---------- Braddock	IVs	80	16	40	---	---	4.0	10.6
4D---------- Braddock	VIs	---	---	---	---	---	3.5	9.3
5C**---------- Braddock-Urban land	---	---	---	---	---	---	---	---
6C---------- Carbo-Rock outcrop	VIIs	---	---	---	---	---	---	---
6E---------- Carbo-Rock outcrop	VIIs	---	---	---	---	---	---	---
7C---------- Catoctin	IIIe	75	15	35	---	3.0	2.5	---
7D---------- Catoctin	VIe	---	---	---	---	---	---	---
8F**---------- Catoctin-Rock outcrop	---	---	---	---	---	---	---	---
9C---------- Chilhowie	IVe	70	15	---	---	---	2.5	---
9D---------- Chilhowie	VIe	---	---	---	---	---	---	---
10A---------- Combs	IIw	135	---	40	---	---	4.5	8.5
11B---------- Cotaco	IIe	110	22	35	---	---	3.0	6.0

See footnotes at end of table.

Table 6.--Land Capability Classes and Yields Per Acre of Crops and Pasture--Continued

Soil name and map symbol	Land capability	Corn	Corn silage	Wheat	Barley	Alfalfa hay	Grass-legume hay	Pasture
		Bu	Tons	Bu	Bu	Tons	Tons	AUM*
12A---------- Craigsville	IIIs	70	12	25	---	2.0	1.5	4.5
13C---------- Dekalb	VIs	---	---	---	---	---	---	---
13D, 13E--------- Dekalb	VIIs	---	---	---	---	---	---	---
14E, 14F--------- Dekalb	VIIs	---	---	---	---	---	---	---
15F**---------- Dekalb-Edgemont-Rock outcrop	VIIs	---	---	---	---	---	---	---
16B---------- Dyke	IIe	125	25	50	---	---	5.5	9.0
16C---------- Dyke	IIIe	120	24	45	---	---	5.0	8.5
17C---------- Edgemont-Dekalb	IVs	---	---	---	---	---	---	---
17D, 17E--------- Edgemont-Dekalb	VIs	---	---	---	---	---	---	---
18C---------- Edneytown	IIIe	80	---	45	---	---	---	---
18D, 18E--------- Edneytown	VIIe	---	---	---	---	---	---	---
19C---------- Edom	IIIe	90	18	35	---	3.5	3.0	6.5
19D---------- Edom	IVe	80	16	35	---	3.0	2.5	5.5
20B, 20C---------- Fauquier	IIe	135	27	50	---	5.5	4.0	10.5
20D---------- Fauquier	IVe	110	22	40	---	4.5	3.0	8.5
20E---------- Fauquier	VIe	---	---	---	---	---	---	7.5
21C---------- Fauquier	VIs	---	---	---	---	---	---	7.0
21D---------- Fauquier	VIIs	---	---	---	---	---	---	---
22C---------- Gilpin	IIIe	85	17	35	---	3.5	3.0	7.0

See footnotes at end of table.

Table 6.--Land Capability Classes and Yields Per Acre of Crops and Pasture--Continued

Soil name and map symbol	Land capability	Corn	Corn silage	Wheat	Barley	Alfalfa hay	Grass-legume hay	Pasture
		Bu	Tons	Bu	Bu	Tons	Tons	AUM*
23D, 23E-------- Gilpin	VIIs	---	---	---	---	---	---	---
24A-------------- Huntington	IIw	130	---	50	---	5.0	3.5	---
25C-------------- Jefferson	IIIe	85	---	35	---	4.0	---	6.0
25D-------------- Jefferson	VIe	---	---	---	---	---	---	---
25E-------------- Jefferson	VIIe	---	---	---	---	---	---	---
26E-------------- Jefferson	VIIs	---	---	---	---	---	---	---
27C-------------- Laidig	IIIe	95	19	35	---	4.0	3.0	4.5
28C-------------- Laidig	VIs	---	---	---	---	---	---	---
28D, 28E-------- Laidig	VIIs	---	---	---	---	---	---	---
29B-------------- Lodi	IIe	135	27	50	---	5	4.0	---
29C-------------- Lodi	IIIe	130	26	45	---	4.5	3.5	---
29D-------------- Lodi	IVe	---	---	40	---	4.5	3.5	---
29E-------------- Lodi	VIe	---	---	---	---	---	---	---
30C-------------- Massanutten	IIIe	---	---	---	---	---	---	2.8
31C-------------- Massanutten	Vs	---	---	---	---	---	---	3.0
31D-------------- Massanutten	VIs	---	---	---	---	---	---	2.5
31E-------------- Massanutten	VIIe	---	---	---	---	---	---	---
32A-------------- Maurertown	IVw	70	14	---	---	---	2.5	4.0
33B-------------- Monongahela	IIe	100	20	40	---	3.5	3.0	---
33C-------------- Monongahela	IIIe	90	18	35	---	3.0	3.0	---

See footnotes at end of table.

Table 6.--Land Capability Classes and Yields Per Acre of Crops and Pasture--Continued

Soil name and map symbol	Land capability	Corn	Corn silage	Wheat	Barley	Alfalfa hay	Grass-legume hay	Pasture
		Bu	Tons	Bu	Bu	Tons	Tons	AUM*
34C---------- Myersville-Catoctin	---	---	---	---	---	---	---	---
34D---------- Myersville-Catoctin	---	---	---	---	---	---	---	---
34E, 35D, 35E--- Myersville-Catoctin	---	---	---	---	---	---	---	---
36B---------- Oaklet	IIe	115	22	45	---	4.0	3.0	---
36C---------- Oaklet	IIIe	95	16	35	--	3.5	2.5	
37C---------- Oaklet-Carbo	---	89	17	37	---	3.7	2.7	---
37E---------- Oaklet-Carbo	---	---	---	---	---	---	---	---
38D, 38E, 38F--- Peaks-Edneytown	---	---	---	---	---	---	---	---
39F**--- Peaks Rock outcrop	---	---	---	---	---	---	---	---
40**---------- Pits, quarry	VIIIs	---	---	---	---	---	---	---
41A---------- Purdy	IVw	80	16	---	---	---	2.5	---
42F [illegible] Rock outcrop-Drall-Dekalb	---	---	---	---	---	---	---	---
43B---------- Sherando	IIIs	60	12	30	---	2.5	2.0	5.4
43C---------- Sherando	IVe	[illegible]	---	---	---	2.5	2.0	5.4
44A---------- Sindion	IIw	125	25	---	---	---	3.0	8.3
45D, 45E-------- Sylvatus-Sylco	---	---	---	---	---	---	---	---
46B--- [illegible] Thurmont	IIe	125	25	45	---	---	4.5	---
46C---------- Thurmont	IIIe	115	23	40	---	---	4.0	---

See footnotes at end of table.

Table 6.--Land Capability Classes and Yields Per Acre of Crops and Pasture--Continued

Soil name and map symbol	Land capability	Corn	Corn silage	Wheat	Barley	Alfalfa hay	Grass-legume hay	Pasture
		Bu	Tons	Bu	Bu	Tons	Tons	AUM*
46D---------- Thurmont	IVe	100	20	35	---	---	4.0	---
47B---------- Timberville	IIe	125	25	45	---	4.5	4.0	8.5
48A---------- Tygart	IIIw	95	19	---	---	3.0	3.0	5.5
49B---------- Unison	IIe	120	25	50	---	---	5.0	9.2
49C---------- Unison	IIIe	115	23	45	---	---	4.7	9.2
49D---------- Unison	IVe	100	20	40	---	---	4.5	9.0
50D---------- Weikert-Berks	---	---	---	---	---	---	---	---
50E---------- Weikert-Berks	---	---	---	---	---	---	---	---
51F---------- Weikert	VIIe	---	---	---	---	---	---	---
52B---------- Wheeling	IIe	125	---	45	---	4.5	---	---
53D---------- Zepp	VIs	---	---	---	---	---	---	3.0
53E, 54E---------- Zepp	VIIe	---	---	---	---	---	---	---
55A---------- Zoar	IIw	90	---	40	---	3.5	3.0	---

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** See description of the map unit for composition and behavior characteristics of the map unit.

Table 7.--Woodland Management and Productivity

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available)

Soil name and map symbol	Ordination symbol	Management concerns					Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class*	
1C**:										
Berks	4F	Slight	Slight	Moderate	Slight	Moderate	Northern red oak	70	4	Virginia pine, eastern white pine, Japanese larch, Norway spruce, red pine.
							Black oak	70	4	
							Virginia pine	70	8	
Weikert	3D	Slight	Slight	Severe	Moderate	Moderate	Northern red oak	59	3	Virginia pine, shortleaf pine, red pine, eastern white pine.
							Virginia pine	56	6	
2A-----------	8A	Slight	Slight	Slight	Slight	Moderate	Yellow-poplar	106	8	Yellow-poplar, eastern white pine, American sycamore, black walnut.
Biltmore							Eastern white pine	103	13	
							Northern red oak	---	-	
							White oak	---	--	
							American sycamore	---	--	
							White ash	---	--	
3B, 3C----------	4A	Slight	Moderate	Slight	Slight	Moderate	Northern red oak	80	4	Yellow-poplar, eastern white pine.
Braddock							Yellow-poplar	90	6	
							Eastern white pine	95	12	
3D----------	4R	Moderate	Moderate	Slight	Slight	Moderate	Northern red oak	80	4	Yellow-poplar, eastern white pine.
Braddock							Yellow-poplar	90	6	
							Eastern white pine	95	12	
4B, 4C----------	4A	Slight	Moderate	Slight	Slight	Moderate	Northern red oak	80	4	Yellow-poplar, eastern white pine.
Braddock							Yellow-poplar	90	6	
							Eastern white pine	95	12	
4D ----------	4R	Moderate	Moderate	Slight	Slight	Moderate	Northern red oak	80	4	Yellow poplar, eastern white pine.
Braddock							Yellow poplar	90	6	
							Eastern white pine	95	12	
5C**:										
Braddock----------	4A	Slight	Moderate	Slight	Slight	Moderate	Northern red oak	80	4	Yellow-poplar, eastern white pine.
							Yellow-poplar	90	6	
							Eastern white pine	95	12	
Urban land.										
6C**:										
Carbo----------	4C	Slight	Moderate	Slight	Moderate	Moderate	Northern red oak	70	4	Virginia pine.
							Virginia pine	55	6	
Rock outcrop.										
6E**:										
Carbo----------	4R	Moderate	Moderate	Slight	Moderate	Moderate	Northern red oak	70	4	Yellow-poplar, Virginia pine.
							Virginia pine	55	5	
Rock outcrop.										

See footnotes at end of table.

Table 7. -Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns					Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class*	
7C Catoctin	3F	Slight	Slight	Slight	Moderate	Slight	Northern red oak Virginia pine Shortleaf pine Yellow-poplar	60 60 60 70	3 6 6 4	Eastern white pine, shortleaf pine.
7D Catoctin	3F	Moderate	Moderate	Slight	Moderate	Slight	Northern red oak Virginia pine Shortleaf pine Yellow-poplar	60 60 60 70	3 6 6 4	Eastern white pine, shortleaf pine.
8F**: Catoctin	6R	Severe	Severe	Moderate	Moderate	Slight	Virginia pine Shortleaf pine Northern red oak Yellow-poplar	60 60 60 70	6 6 3 4	Eastern white pine, shortleaf pine.
Rock outcrop.										
9C Chilhowie	3C	Slight	Moderate	Moderate	Moderate	Slight	Northern red oak Virginia pine Shortleaf pine	60 60 60	3 6 6	Eastern white pine.
9D Chilhowie	3R	Moderate	Moderate	Moderate	Moderate	Slight	Northern red oak Virginia pine Shortleaf pine	60 60 60	3 6 6	Eastern white pine.
10A Combs	9A	Slight	Slight	Slight	Slight	Severe	Yellow-poplar Northern red oak White oak Black walnut American sycamore	115 90 --- --- ---	9 5 -- -- --	Yellow-poplar, black walnut, white oak, eastern white pine, shortleaf pine, white ash, northern red oak.
11B Cotaco	9A	Slight	Slight	Slight	Slight	Severe	Virginia pine Yellow-poplar Black oak Sweet birch	81 95 87 ---	9 7 5 --	Eastern white pine, yellow poplar, white oak, sweetgum.
12A Craigsville	4F	Slight	Slight	Slight	Slight	Severe	Northern red oak Yellow-poplar Eastern white pine Virginia pine	80 95 90 80	4 7 12 8	Loblolly pine, eastern white pine, yellow-poplar.
13C Dekalb	3F	Slight	Slight	Moderate	Slight	Moderate	Northern red oak	57	3	Eastern white pine, red pine, Austrian pine, Japanese larch.
13D Dekalb	2F	Slight	Moderate	Moderate	Moderate	Moderate	Northern red oak	52	2	Eastern white pine, Virginia pine, white spruce, Norway spruce.
13E Dekalb	2R	Moderate	Severe	Moderate	Moderate	Moderate	Northern red oak	52	2	Eastern white pine, Virginia pine, white spruce, Norway spruce.

See footnotes at end of table.

Table 7.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Trees to plant
14E, 14F---------- Dekalb	2R	Moderate	Severe	Moderate	Moderate	Moderate	Northern red oak----	52	2	Eastern white pine, Virginia pine, white spruce, Norway spruce.
15F**:										
Dekalb----------	2R	Moderate	Severe	Moderate	Moderate	Moderate	Northern red oak----	52	2	Eastern white pine, Virginia pine, white spruce, Norway spruce.
Edgemont----------	4R	Moderate	Severe	Slight	Slight	Moderate	Northern red oak----	75	4	Eastern white pine,
							Yellow-poplar-------	90	6	Japanese larch, yellow-poplar, Virginia pine, Norway spruce.
Rock outcrop.										
16B, 16C---------- Dyke	4A	Slight	Moderate	Slight	Slight	Severe	Northern red oak----	85	4	Yellow poplar,
							Yellow poplar ------	95	7	loblolly pine,
							Virginia pine-------	80	8	northern red oak,
							Shortleaf pine------	80	9	black walnut, eastern white pine.
17C**:										
Edgemont----------	4A	Slight	Slight	Slight	Slight	Moderate	Northern red oak----	69	4	Eastern white pine,
							Yellow-poplar-------	80	5	Japanese larch, yellow-poplar, Virginia pine, Norway spruce.
Dekalb----------	3F	Slight	Slight	Moderate	Slight	Moderate	Northern red oak----	57	3	Eastern white pine, red pine, Austrian pine, Japanese larch.
17D**:										
Edgemont----------	4R	Slight	Moderate	Slight	Slight	Moderate	Northern red oak----	75	4	Eastern white pine,
							Yellow-poplar-------	90	6	Japanese larch, yellow-poplar, Virginia pine, Norway spruce.
Dekalb----------	2F	Slight	Moderate	Moderate	Moderate	Moderate	Northern red oak----	52	2	Eastern white pine, Virginia pine, white spruce, Norway spruce.
17E**:										
Edgemont----------	4R	Moderate	Severe	Slight	Slight	Moderate	Northern red oak----	75	4	Eastern white pine,
							Yellow-poplar-------	90	6	Japanese larch, yellow-poplar, Virginia pine, Norway spruce.

See footnotes at end of table.

Table 7.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Trees to plant
17E**:										
Dekalb	2R	Moderate	Severe	Moderate	Moderate	Moderate	Northern red oak	52	2	Eastern white pine, Virginia pine, white spruce, Norway spruce.
18C	8A	Slight	Slight	Slight	Slight	Slight	Pitch pine	70	-	Shortleaf pine, eastern white pine, yellow-poplar.
Edneytown							Shortleaf pine	70	8	
							Virginia pine	70	8	
							Eastern white pine	80	10	
							Yellow-poplar	90	6	
							White oak	60	3	
							Southern red oak	60	3	
							Hickory	58	--	
18D	8R	Moderate	Moderate	Moderate	Slight	Slight	Pitch pine	70	-	Shortleaf pine, eastern white pine, yellow-poplar.
Edneytown							Shortleaf pine	70	8	
							Virginia pine	70	8	
							Eastern white pine	80	10	
							Yellow-poplar	90	6	
							White oak	60	3	
							Southern red oak	60	3	
							Hickory	58	--	
18E	8R	Severe	Severe	Moderate	Slight	Slight	Pitch pine	70	-	Shortleaf pine, eastern white pine, yellow-poplar.
Edneytown							Shortleaf pine	70	8	
							Virginia pine	70	8	
							Eastern white pine	80	10	
							Yellow-poplar	90	6	
							White oak	60	3	
							Southern red oak	60	3	
							Hickory	58	--	
19C	4A	Slight	Slight	Slight	Slight	Slight	Northern red oak	80	4	Eastern white pine, yellow-poplar, Norway spruce, Virginia pine.
Edom							Yellow-poplar	90	6	
19D	4R	Moderate	Moderate	Slight	Slight	Slight	Northern red oak	80	4	Eastern white pine, yellow-poplar, Norway spruce, Virginia pine.
Edom							Yellow-poplar	90	6	
20B, 20C	4C	Slight	Moderate	Slight	Slight	Severe	Northern red oak	100	4	Yellow-poplar, eastern white pine, black walnut, loblolly pine.
Fauquier							Yellow-poplar	120	10	
20D, 20E	4C	Moderate	Severe	Slight	Slight	Severe	Northern red oak	100	4	Yellow-poplar, eastern white pine, black walnut, loblolly pine.
Fauquier							Yellow-poplar	120	10	
21C	4C	Slight	Moderate	Slight	Slight	Severe	Northern red oak	100	4	Yellow-poplar, eastern white pine, black walnut, loblolly pine.
Fauquier							Yellow-poplar	120	10	

See footnotes at end of table.

Table 7.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns					Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class*	
21D--Fauquier	4C	Moderate	Severe	Slight	Slight	Severe	Northern red oak Yellow-poplar	100 120	4 10	Yellow-poplar, eastern white pine, black walnut, loblolly pine.
22C--Gilpin	4A	Slight	Slight	Slight	Slight	Moderate	Northern red oak Yellow-poplar	80 95	4 7	Japanese larch, Virginia pine, eastern white pine, black cherry, yellow-poplar.
23D--Gilpin	4R	Moderate	Moderate	Slight	Slight	Moderate	Northern red oak Yellow-poplar	80 95	4 7	Japanese larch, Virginia pine, eastern white pine, black cherry, yellow-poplar.
23E--Gilpin	4R	Severe	Severe	Slight	Slight	Moderate	Northern red oak Yellow-poplar	80 95	4 7	Japanese larch, Virginia pine, eastern white pine, black cherry, yellow-poplar.
24A--Huntington	7A	Slight	Slight	Slight	Slight		Yellow-poplar Northern red oak	95 85	7 4	Yellow-poplar, black walnut, black locust, eastern white pine.
25C--Jefferson	7A	Slight	Slight	Slight	Slight	Moderate	Shortleaf pine Yellow-poplar Pitch pine Virginia pine White oak	65 98 --- 70 ---	7 7 -- 8 --	Eastern white pine, yellow-poplar, white oak, shortleaf pine, black walnut.
25D--Jefferson	4R	Moderate	Moderate	Slight	Slight	Moderate	Northern red oak Yellow-poplar Shortleaf pine White oak	85 108 --- ---	4 8 -- --	Yellow-poplar, eastern white pine, shortleaf pine.
25E--Jefferson	4R	Severe	Severe	Slight	Slight	Moderate	Northern red oak Yellow-poplar Shortleaf pine White oak	85 108 --- ---	4 8 -- --	Yellow-poplar, eastern white pine, shortleaf pine.
26E--Jefferson	4R	Severe	Severe	Slight	Slight	Moderate	Northern red oak Yellow-poplar Shortleaf pine White oak Cucumbertree	85 108 --- --- ---	4 8 -- -- --	Yellow-poplar, eastern white pine, shortleaf pine, white oak.
27C--Laidig	4A	Slight	Slight	Slight	Slight	Slight	Northern red oak Yellow-poplar Eastern white pine Virginia pine	71 89 80 70	4 6 10 8	Eastern white pine, yellow-poplar, black walnut.

See footnotes at end of table.

Table 7.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns					Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class*	
28C---------- Laidig	4A	Slight	Slight	Slight	Slight	Moderate	Northern red oak----	80	4	Eastern white pine, yellow-poplar, black walnut, Norway spruce, black locust, Japanese larch, black cherry.
							White oak----------	80	4	
							Yellow-poplar-------	90	6	
							White ash----------	80	4	
							Sugar maple---------	80	4	
							Black cherry--------	80	4	
							Eastern white pine--	90	12	
							Black locust--------	80	--	
28D---------- Laidig	4R	Slight	Moderate	Slight	Slight	Moderate	Northern red oak----	80	4	Eastern white pine, yellow-poplar, black walnut, Norway spruce, black locust, Japanese larch, black cherry.
							White oak----------	80	4	
							Yellow-poplar-------	90	6	
							White ash----------	80	4	
							Sugar maple---------	80	4	
							Black cherry--------	80	4	
							Eastern white pine--	90	12	
							Black locust--------	80	--	
28E---------- Laidig	4R	Moderate	Severe	Slight	Slight	Moderate	Northern red oak----	80	4	Eastern white pine, yellow-poplar, black walnut, Norway spruce, black locust, Japanese larch, black cherry.
							White oak----------	80	4	
							Yellow-poplar-------	90	6	
							White ash----------	80	4	
							Sugar maple---------	80	4	
							Black cherry--------	80	4	
							Eastern white pine--	90	12	
							Black locust--------	80	--	
29B---------- Lodi	4C	Slight	Slight	Slight	Slight	Slight	Northern red oak----	76	4	Eastern white pine, yellow-poplar.
							Yellow-poplar-------	86	6	
							White oak----------	76	4	
29C, 29D---------- Lodi	4R	Moderate	Severe	Slight	Slight	Slight	Northern red oak----	76	4	Eastern white pine, yellow-poplar.
							Yellow-poplar-------	86	6	
							White oak----------	76	4	
29E---------- Lodi	4R	Severe	Severe	Slight	Slight	Slight	Northern red oak----	76	4	Eastern white pine, yellow-poplar.
							Yellow-poplar-------	86	6	
							White oak----------	76	4	
30C, 31C---------- Massanutten	3D	Slight	Slight	Slight	Moderate	Moderate	Northern red oak----	65	3	Eastern white pine, Virginia pine.
							Chestnut oak-------	65	3	
							Virginia pine------	70	8	
							Shortleaf pine------	65	7	
31D---------- Massanutten	3R	Moderate	Moderate	Slight	Moderate	Moderate	Northern red oak----	65	3	Eastern white pine, Virginia pine.
							Chestnut oak--------	65	3	
							Virginia pine-------	70	8	
							Shortleaf pine------	65	7	
31E---------- Massanutten	3R	Severe	Severe	Slight	Moderate	Moderate	Northern red oak----	65	3	Eastern white pine, Virginia pine.
							Chestnut oak--------	65	3	
							Virginia pine-------	70	8	
							Shortleaf pine------	65	7	

See footnotes at end of table.

Table 7.--Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns					Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class*	
32A---------- Maurertown	6W	Slight	Severe	Severe	Severe	Severe	Yellow poplar	90	6	Yellow poplar, eastern white pine.
							Sweetgum----------	95	8	
							Water oak----------	---	--	
							Red maple----------	---	--	
							Willow----------	---	--	
33B---------- Monongahela	4A	Slight	Slight	Slight	Slight	Moderate	Northern red oak----	70	4	Eastern white pine, Virginia pine, yellow-poplar, black cherry, Japanese larch
							Yellow-poplar-------	85	6	
							Eastern white pine--	72	9	
							Virginia pine-------	66	7	
							White ash----------	---	--	
							Black walnut--------	---	--	
33C---------- Monongahela	4A	Moderate	Slight	Slight	Slight	Moderate	Northern red oak----	70	4	Eastern white pine, Virginia pine, yellow-poplar, black cherry, Japanese larch.
							Yellow-poplar-------	85	6	
							Eastern white pine	72	9	
							Virginia pine-------	66	7	
							White ash----------	---	--	
							Black walnut--------	---	--	
34C**:										
Myersville--------	5X	Slight	Moderate	Slight	Slight	Moderate	Northern red oak----	85	5	Yellow-poplar, black walnut, eastern white pine.
							Yellow-poplar-------	95	7	
Catoctin----------	6F	Slight	Slight	Slight	Moderate	Slight	Virginia pine	60	6	Eastern white pine, shortleaf pine.
							Shortleaf pine------	60	6	
							Northern red oak----	60	3	
							Yellow-poplar-------	70	4	
34D**:										
Myersville--------	5X	Moderate	Moderate	Slight	Slight	Moderate	Northern red oak----	85	5	Black walnut, eastern white pine.
							Yellow-poplar-------	95	7	
Catoctin----------	6F	Moderate	Moderate	Slight	Moderate	Slight	Virginia pine	60	6	Eastern white pine, shortleaf pine.
							Shortleaf pine------	60	6	
							Northern red oak----	60	3	
							Yellow-poplar-------	70	4	
34E**:										
Myersville--------	5R	Severe	Severe	Slight	Slight	Moderate	Northern red oak----	85	5	Black walnut, eastern white pine.
							Yellow-poplar ------	95	7	
Catoctin----------	5R	Severe	Severe	Slight	Slight	Moderate	Northern red oak----	85	5	Black walnut, eastern white pine.
							Yellow-poplar-------	95	7	
35D**:										
Myersville--------	5X	Moderate	Moderate	Slight	Slight	Moderate	Northern red oak----	85	5	Black walnut, eastern white pine.
							Yellow poplar ----	95	7	
Catoctin----------	6X	Moderate	Moderate	Moderate	Moderate	Slight	Virginia pine-------	60	6	Eastern white pine, shortleaf pine.
							Shortleaf pine------	60	6	
							Northern red oak----	60	3	
							Yellow-poplar-------	70	4	

See footnotes at end of table.

Table 7. Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Trees to plant
35E**:										
Myersville	5R	Severe	Severe	Slight	Slight	Moderate	Northern red oak	85	5	Black walnut, eastern white pine.
							Yellow-poplar	95	7	
Catoctin	6R	Severe	Severe	Moderate	Moderate	Slight	Virginia pine	60	6	Eastern white pine, shortleaf pine.
							Shortleaf pine	60	6	
							Northern red oak	60	3	
							Yellow-poplar	70	4	
36B, 36C	4C	Slight	Moderate	Slight	Slight	Moderate	Northern red oak	75	4	Yellow-poplar, eastern white pine, black walnut.
Oaklet							Yellow-poplar	85	6	
37C**:										
Oaklet	4C	Slight	Moderate	Slight	Slight	Moderate	Northern red oak	75	4	Yellow-poplar, eastern white pine, black walnut.
							Yellow-poplar	85	6	
Carbo	4C	Slight	Moderate	Slight	Moderate	Moderate	Northern red oak	70	4	Virginia pine.
							Virginia pine	55	6	
38D**:										
Peaks	3R	Slight	Moderate	Slight	Slight	Moderate	Northern red oak	67	3	Eastern white pine.
							Virginia pine	60	6	
							Eastern white pine	---	--	
Edneytown	3R	Moderate	Moderate	Slight	Slight	Moderate	Northern red oak	60	3	Shortleaf pine, eastern white pine, yellow-poplar.
							Shortleaf pine	70	8	
							Virginia pine	70	8	
							Eastern white pine	80	10	
							Yellow-poplar	90	6	
							White oak	60	3	
38E**, 38F**:										
Peaks	3R	Moderate	Severe	Slight	Slight	Moderate	Northern red oak	67	3	Eastern white pine.
							Virginia pine	60	6	
							Eastern white pine	---	--	
Edneytown	3R	Severe	Severe	Slight	Slight	Moderate	Northern red oak	60	3	Shortleaf pine, eastern white pine, yellow-poplar.
							Shortleaf pine	70	8	
							Virginia pine	70	8	
							Eastern white pine	80	10	
							Yellow poplar	90	6	
							White oak	60	3	
39F**:										
Peaks	3R	Moderate	Severe	Slight	Slight	Moderate	Northern red oak	67	3	Eastern white pine.
							Virginia pine	60	6	
							Eastern white pine	---	--	
Rock outcrop.										
41A	4W	Slight	Severe	Severe	Severe	Severe	Pin oak	85	4	Virginia pine, eastern white pine, loblolly pine.
Purdy							Shortleaf pine	75	8	
							Virginia pine	75	8	
							Yellow-poplar	90	6	
							Sweetgum	85	6	

See footnotes at end of table.

Table 7. Woodland Management and Productivity - Continued

Soil name and map symbol	Ordination symbol	Management concerns					Potential productivity			Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Productivity class*	
42F**:										
Rock outcrop.										
Drall	4R	Severe	Severe	Moderate	Slight	Slight	Northern red oak	75	4	Eastern white pine, Virginia pine.
							Yellow-poplar	85	6	
							Virginia pine	70	8	
							Eastern white pine	85	11	
Dekalb	2R	Moderate	Severe	Moderate	Slight		Northern red oak	52	2	Eastern white pine, Virginia pine, white spruce, Norway spruce.
43B, 43C	3F	Slight	Slight	Moderate	Slight	Slight	Northern red oak	60	3	Yellow-poplar, eastern white pine, shortleaf pine.
Sherando							Yellow-poplar	70	4	
							Eastern white pine	70	8	
44A	4A	Slight	Slight	Slight	Slight	Moderate	Northern red oak	80	4	Eastern white pine, yellow-poplar, shortleaf pine.
Sindion							Yellow poplar	95	7	
							Virginia pine	70	8	
45D**:										
Sylvatus	3R	Moderate	Moderate	Moderate	Moderate	Moderate	Northern red oak	55	3	Eastern white pine.
							Virginia pine	45	4	
							Yellow-poplar	70	4	
Sylco	6X	Slight	Severe	Slight	Moderate	Moderate	Shortleaf pine	60	6	Shortleaf pine, Virginia pine, eastern white pine.
							Virginia pine	60	6	
							Eastern white pine	70	8	
45E**:										
Sylvatus	3R	Severe	Severe	Moderate	Moderate	Moderate	Northern red oak	55	3	Eastern white pine.
							Virginia pine	45	4	
							Yellow-poplar	70	4	
Sylco	6R	Moderate	Severe	Slight	Moderate	Moderate	Shortleaf pine	60	6	Shortleaf pine, Virginia pine, eastern white pine.
							Virginia pine	60	6	
							Eastern white pine	70	8	
46B, 46C	4A	Slight	Slight	Slight	Slight	Severe	Northern red oak	76	4	Eastern white pine, yellow-poplar.
Thurmont							Yellow-poplar	88	6	
							Eastern white pine	88	11	
							Shortleaf pine	77	9	
46D	4R	Moderate	Moderate	Slight	Slight	Severe	Northern red oak	76	4	Eastern white pine, yellow-poplar.
Thurmont							Yellow-poplar	88	6	
							Eastern white pine	88	11	
							Shortleaf pine	77	9	
47B	5A	Slight	Slight	Slight	Slight	Severe	Yellow-poplar	80	5	Yellow-poplar, black walnut, eastern white pine.
Timberville							Northern red oak	90	5	
							Shortleaf pine	80	9	
							Virginia pine	70	8	
48A	4W	Slight	Severe	Severe	Moderate		Northern red oak	80	4	Eastern white pine, Virginia pine, Norway spruce.
Tygart							Yellow-poplar	90	6	
							Red maple	---	--	
							White ash	80	4	
							Black oak	80	4	

See footnotes at end of table.

Table 7.—Woodland Management and Productivity--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Potential productivity: Common trees	Site index	Productivity class*	Trees to plant
49B, 49C—Unison	5A	Slight	Slight	Slight	Slight	Severe	Northern red oak	85	5	Yellow-poplar, black walnut, eastern white pine.
							Yellow poplar	95	7	
							Virginia pine	80	8	
49D—Unison	5R	Slight	Moderate	Slight	Slight	Severe	Northern red oak	85	5	Yellow-poplar, black walnut, eastern white pine.
							Yellow-poplar	95	7	
							Virginia pine	80	8	
50D**:										
Weikert	3D	Slight	Moderate	Severe	Moderate	Moderate	Northern red oak	64	3	Eastern white pine, shortleaf pine, Virginia pine.
							Virginia pine	60	6	
Berks	4F	Slight	Moderate	Moderate	Slight	Moderate	Northern red oak	70	4	Virginia pine, eastern white pine, Japanese larch, Norway spruce, red pine.
							Black oak	70	4	
							Virginia pine	70	8	
50E**:										
Weikert	3R	Moderate	Severe	Severe	Moderate	Moderate	Northern red oak	64	3	Eastern white pine, shortleaf pine, Virginia pine.
							Virginia pine	60	6	
Berks	4R	Moderate	Severe	Moderate	Slight	Moderate	Northern red oak	70	4	Virginia pine, eastern white pine, Japanese larch, Norway spruce, red pine.
							Black oak	70	4	
							Virginia pine	70	8	
51F—Weikert	3R	Moderate	Severe	Severe	Moderate	Moderate	Northern red oak	64	3	Eastern white pine, shortleaf pine, Virginia pine.
							Virginia pine	60	6	
52B—Wheeling	4A	Slight	Slight	Slight	Slight	Severe	Northern red oak	80	4	Eastern white pine, yellow-poplar, black walnut.
							Yellow-poplar	90	6	
53D—Zepp	4R	Moderate	Moderate	Slight	Slight	---	Northern red oak	68	4	Eastern white pine, yellow poplar, shortleaf pine.
							Virginia pine	72	8	
							Yellow-poplar	75	4	
							Shortleaf pine	65	7	
53E, 54E—Zepp	4R	Severe	Severe	Slight	Slight	---	Northern red oak	68	4	Eastern white pine, yellow-poplar, shortleaf pine.
							Virginia pine	72	8	
							Yellow-poplar	75	4	
							Shortleaf pine	65	7	
55A—Zoar	4A	Slight	Slight	Slight	Slight	Moderate	Northern red oak	70	4	Eastern white pine, shortleaf pine, Virginia pine, yellow-poplar.
							Yellow-poplar	80	5	
							Virginia pine	70	8	
							Eastern white pine	80	10	
							Black oak	70	4	
							White oak	70	4	
							Red maple	---	--	

* Productivity class is the yield in cubic meters per hectare per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

** See description of the map unit for composition and behavior characteristics of the map unit.

Table 8.--Recreational Development

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
1C*:					
Berks	Severe: small stones.	Severe: small stones.	Severe: slope, small stones.	Slight	Severe: small stones.
Weikert	Severe: small stones, depth to rock.	Severe: small stones, depth to rock.	Severe: slope, small stones.	Slight	Severe: depth to rock.
2A	Severe: flooding.	Slight	Moderate: flooding.	Slight	Moderate: droughty, flooding.
Biltmore					
3B	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
Braddock					
3C	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
Braddock					
3D	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Braddock					
4B	Moderate: large stones, small stones.	Moderate: large stones, small stones.	Severe: large stones, small stones.	Moderate: large stones.	Severe: large stones.
Braddock					
4C	Moderate: slope, large stones, small stones.	Moderate: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Moderate: large stones.	Severe: large stones.
Braddock					
4D	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Moderate: large stones, slope.	Severe: large stones, slope.
Braddock					
5C*:					
Braddock	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
Urban land	Variable	Variable	Variable	Variable	Variable.
6C*:					
Carbo	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope, depth to rock.
Rock outcrop	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Slight	Severe: depth to rock.
6E*:					
Carbo	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.

See footnote at end of table.

Table 8.—Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
6E*:					
Rock outcrop	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: depth to rock.
7C----------	Moderate:	Moderate:	Severe:	Slight----------	Moderate:
Catoctin	slope.	slope.	slope.		droughty, slope.
7D----------	Severe:	Severe:	Severe:	Severe:	Severe:
Catoctin	slope.	slope.	slope.	slope.	slope.
8F*:					
Catoctin	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope.	Severe: slope.	Severe: large stones, slope.
Rock outcrop	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: depth to rock.
9C----------	Moderate:	Moderate:	Severe:	Slight----------	Moderate:
Chilhowie	slope, percs slowly.	slope, percs slowly.	slope.		large stones, slope.
9D----------	Severe:	Severe:	Severe:	Moderate:	Severe:
Chilhowie	slope.	slope.	slope.	slope.	slope.
10A----------	Severe:	Slight----------	Moderate:	Slight----------	Moderate:
Combs	flooding.		flooding.		flooding.
11B----------	Moderate:	Moderate:	Moderate:	Severe:	Moderate:
Cotaco	wetness.	wetness.	slope, small stones.	erodes easily.	wetness.
12A----------	Severe:	Moderate:	Severe:	Moderate:	Severe:
Craigsville	flooding.	flooding, large stones.	flooding, small stones.	large stones, flooding.	large stones, flooding.
13C----------	Severe:	Severe:	Severe:	Moderate:	Severe:
Dekalb	small stones.	small stones.	large stones, slope, small stones.	large stones.	small stones.
13D, 13E, 14E, 14F----	Severe:	Severe:	Severe:	Severe:	Severe:
Dekalb	slope, small stones.	slope, small stones.	large stones, slope, small stones.	slope.	small stones, slope.
15F*:					
Dekalb	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: small stones, slope.
Edgemont	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.

See footnote at end of table.

Table 8.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
15F*:					
Rock outcrop	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: depth to rock.
16B---------- Dyke	Slight----------	Slight----------	Moderate: slope, small stones.	Slight----------	Slight.
16C---------- Dyke	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
17C*:					
Edgemont----------	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: large stones, slope, small stones.	Slight----------	Moderate: small stones, large stones, slope.
Dekalb----------	Severe: small stones.	Severe: small stones.	Severe: large stones, slope, small stones.	Moderate: large stones.	Severe: small stones.
17D*, 17E*:					
Edgemont----------	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.
Dekalb----------	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: small stones, slope.
18C---------- Edneytown	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope.
18D, 18E---------- Edneytown	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
19C---------- Edom	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Slight----------	Moderate: slope.
19D---------- Edom	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
20B, 20C---------- Fauquier	Slight----------	Slight----------	Moderate: slope, small stones.	Slight----------	Slight.
20D---------- Fauquier	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
20E---------- Fauquier	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.

See footnote at end of table.

Table 8.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
21C---------- Fauquier	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: large stones, slope, small stones.	Slight----------	Moderate: slope, large stones.
21D---------- Fauquier	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.
22C---------- Gilpin	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope, thin layer.
23D, 23E---------- Gilpin	Severe: slope, small stones.	Severe: slope, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: small stones, large stones, slope.
24A---------- Huntington	Severe: flooding.	Slight----------	Moderate: flooding.	Slight----------	Moderate: flooding.
25C---------- Jefferson	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight----------	Moderate: small stones, slope.
25D, 25E---------- Jefferson	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
26E---------- Jefferson	Severe: slope.	Severe: slope.	Severe: large stones, small stones, slope.	Severe: slope.	Severe: slope.
27C---------- Laidig	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight----------	Moderate: small stones, droughty, slope.
28C---------- Laidig	Moderate: slope, large stones, small stones.	Moderate: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Slight----------	Moderate: small stones, large stones, slope.
28D, 28E---------- Laidig	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.
29B---------- Lodi	Slight----------	Slight----------	Moderate: slope, small stones.	Slight----------	Slight.
29C---------- Lodi	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
29D, 29E---------- Lodi	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.

See footnote at end of table.

Table 8.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
30C---------- Massanutten	Moderate: slope, small stones.	Moderate: slope, small stones.	Severe: slope, small stones.	Slight----------	Moderate: small stones, droughty, slope.
31C---------- Massanutten	Moderate: slope, large stones, small stones.	Moderate: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Slight----------	Moderate: small stones, large stones, slope.
31D, 31E---------- Massanutten	Severe: slope.	Severe: slope.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: slope.
32A---------- Maurertown	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
33B---------- Monongahela	Moderate: wetness.	Moderate: wetness.	Moderate: slope, small stones.	Severe: erodes easily.	Moderate: wetness.
33C---------- Monongahela	Moderate: slope, wetness.	Moderate: slope, wetness.	Severe: slope.	Severe: erodes easily.	Moderate: wetness, slope.
34C*:					
Myersville----------	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: large stones, slope.	Slight----------	Moderate: large stones, slope.
Catoctin----------	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: large stones, slope.	Slight----------	Moderate: large stones, droughty, slope.
34D*, 34E*:					
Myersville----------	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.	Severe: slope.
Catoctin----------	Severe: slope.	Severe: slope.	Severe: large stones, slope.	Severe: slope.	Severe: slope.
35D*, 35E*:					
Myersville----------	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope.	Severe: slope.	Severe: large stones, slope.
Catoctin----------	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope.	Severe: slope.	Severe: large stones, slope.
36B---------- Oaklet	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, small stones, percs slowly.	Severe: erodes easily.	Moderate: droughty.

See footnote at end of table.

Table 8.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
36C---------- Oaklet	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: droughty, slope.
37C*:					
Oaklet----------	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: droughty, slope.
Carbo	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope, depth to rock.
37E*:					
Oaklet----------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
Carbo- -- - -- --- -	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
38D*, 38E*, 38F*:					
Peaks----------	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: small stones, large stones, slope.
Edneytown----------	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, slope.	Severe: slope.	Severe: slope.
39F*:					
Peaks----------	Severe: slope, large stones, small stones.	Severe: slope, large stones, small stones.	Severe: large stones, slope, small stones.	Severe: slope.	Severe: small stones, large stones, slope.
Rock outcrop---------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: depth to rock.
40*---------- Pits, quarry	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Slight----------	Severe: depth to rock.
41A---------- Purdy	Severe: ponding, percs slowly.	Severe: ponding, percs slowly.	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding.
42F*:					
Rock outcrop---------	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope.	Severe: depth to rock.
Drall----------	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: large stones, droughty, slope.

See footnote at end of table.

Table 8.--Recreational Development--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
42F*:					
Dekalb	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope, small stones.
43B	Moderate: large stones.	Moderate: large stones.	Severe: large stones.	Moderate: large stones.	Severe: large stones.
43C	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: large stones, slope.	Moderate: large stones.	Severe: large stones.
44A	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Moderate: wetness.	Moderate: wetness, flooding.
45D*, 45E*:					
Sylvatus	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, small stones, depth to rock.	Severe: slope.	Severe: depth to rock, slope.
Sylco	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Severe: slope.	Severe: slope.
46B	Slight	Slight	Moderate: slope, small stones.	Slight	Slight.
46C	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: slope.
46D	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
47B	Severe: flooding.	Slight	Moderate: slope, small stones.	Slight	Slight.
48A	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, erodes easily.	Severe: wetness.
49B	Slight	Slight	Moderate: slope, small stones.	Slight	Moderate: large stones.
49C	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight	Moderate: large stones, slope.
49D	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
50D*, 50E*:					
Weikert	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.	Severe: depth to rock.

See footnote at end of table.

Table 8.--Recreational Development Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
50D*, 50E*: Berks	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.	Severe: small stones, slope.
51F--- Weikert	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope, small stones.	Severe: slope.	Severe: depth to rock.
52B--- Wheeling	Slight---	Slight---	Moderate: slope.	Slight---	Slight.
53D, 53E--- Zepp	Severe: slope.	Severe: slope.	Severe: large stones, small stones, slope.	Severe: slope.	Severe: slope.
54E--- Zepp	Severe: slope, large stones.	Severe: slope, large stones.	Severe: large stones, small stones, slope.	Severe: slope.	Severe: large stones, slope.
55A--- Zoar	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: erodes easily.	Slight.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 9.--Wildlife Habitat

(See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
1C*:										
Berks	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
Weikert	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
2A Biltmore	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
3B Braddock	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
3C Braddock	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
3D Braddock	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
4B Braddock	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
4C Braddock	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
4D Braddock	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
5C*:										
Braddock	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Urban land	---	---	---	---	---	---	---	---	---	---
6C*:										
Carbo	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Rock outcrop	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
6E*:										
Carbo	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Rock outcrop	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
7C Catoctin	Fair	Good	Good	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.
7D Catoctin	Very poor.	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.

See footnote at end of table.

Table 9.--Wildlife Habitat--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
8F*:										
Catoctin	Very poor.	Very poor.	Good	Fair	Fair	Very poor.	Very poor.	Very poor.	Fair	Very poor.
Rock outcrop	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
9C, 9D Chilhowie	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.
10A Combs	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Very poor.
11B Cotaco	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
12A Craigsville	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
13C Dekalb	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
13D, 13E Dekalb	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
14E, 14F Dekalb	Very poor.	Very poor.	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
15F*:										
Dekalb	Very poor.	Very poor.	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Edgemont	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Rock outcrop	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
16B Dyke	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
16C Dyke	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
17C*:										
Edgemont	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Dekalb	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
17D*, 17E*:										
Edgemont	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Dekalb	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.

See footnote at end of table.

Table 9.--Wildlife Habitat Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hardwood trees	Conif erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
18C---------- Edneytown	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
18D, 18E---------- Edneytown	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
19C---------- Edom	Fair	Good	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
19D---------- Edom	Poor	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
20B, 20C---------- Fauquier	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
20D---------- Fauquier	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
20E---------- Fauquier	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
21C---------- Fauquier	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
21D---------- Fauquier	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
22C---------- Gilpin	Fair	Good	Good	Fair	Fair	Very poor.	Very poor.	Good	Fair	Very poor.
23D, 23E---------- Gilpin	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
24A---------- Huntington	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
25C---------- Jefferson	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
25D---------- Jefferson	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
25E, 26E---------- Jefferson	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
27C---------- Laidig	Fair	Good	Good	Fair	Fair	Very poor.	Very poor.	Good	Fair	Very poor.
28C---------- Laidig	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
28D, 28E---------- Laidig	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
29B---------- Lodi	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
29C---------- Lodi	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

See footnote at end of table.

Table 9.--Wildlife Habitat--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
29D---------- Lodi	Fair	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
29E---------- Lodi	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
30C---------- Massanutten	Fair	Good	Good	Fair	Fair	Very poor.	Very poor.	Good	Fair	Very poor.
31C---------- Massanutten	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
31D---------- Massanutten	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
31E---------- Massanutten	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
32A---------- Maurertown	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
33B---------- Monongahela	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
33C---------- Monongahela	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
34C*:										
Myersville--------	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Catoctin----------	Very poor.	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
34D*:										
Myersville--------	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Catoctin----------	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
34E*:										
Myersville--------	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Catoctin----------	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
35D*:										
Myersville--------	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Catoctin----------	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
35E*:										
Myersville--------	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.

See footnote at end of table.

Table 9.--Wildlife Habitat--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
35E*:										
Catoctin	Very poor.	Very poor.	Good	Fair	Fair	Very poor.	Very poor.	Very poor.	Fair	Very poor.
36B	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Oaklet										
36C	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Oaklet										
37C*:										
Oaklet	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Carbo	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
37E*:										
Oaklet	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Carbo	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
38D*, 38E*, 38F*:										
Peaks	Very poor.	Very poor.	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Edneytown	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
39F*:										
Peaks	Very poor.	Very poor.	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Rock outcrop	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
40*	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Pits, quarry										
41A	Poor	Fair	Fair	Fair	---	Good	Good	Fair	Fair	Good.
Purdy										
42F*:										
Rock outcrop	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.
Drall	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Dekalb	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
43B, 43C	Fair	Fair	Poor	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
Sherando										
44A	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Sindion										

See footnote at end of table.

Table 9.--Wildlife Habitat--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hardwood trees	Conif-erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
45D*:										
Sylvatus	Very poor.	Very poor.	Fair	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.
Sylco	Very poor.	Fair	Good	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
45E*:										
Sylvatus	Very poor.	Very poor.	Fair	Poor	Poor	Very poor.	Very poor.	Very poor.	Poor	Very poor.
Sylco	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
46B--- Thurmont	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
46C--- Thurmont	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
46D--- Thurmont	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
47B --- Timberville	Poor	Fair	Fair	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
48A--- Tygart	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
49B--- Unison	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
49C--- Unison	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
49D--- Unison	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
50D*:										
Weikert	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
Berks	Very poor.	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
50E*:										
Weikert	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
Berks	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
51F--- Weikert	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
52B--- Wheeling	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

See footnote at end of table.

Table 9.--Wildlife Habitat--Continued

Soil name and map symbol	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hardwood trees	Conif-erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
53D---------- Zepp	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
53E - - Zepp	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
54E---------- Zepp	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
55A---------- Zoar	Fair	Good	Good	Good	Good	Good	Fair	Good	Good	Fair.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 10.--Building Site Development

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
1C*:						
Berks	Moderate: depth to rock, large stones, slope.	Moderate: slope, large stones.	Moderate: depth to rock, slope, large stones.	Severe: slope.	Moderate: slope, large stones.	Severe: small stones.
Weikert	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, frost action.	Severe: depth to rock.
2A Biltmore	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: droughty, flooding.
3B Braddock	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
3C Braddock	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, slope.	Severe: slope.	Severe: low strength.	Moderate: slope.
3D Braddock	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
4B Braddock	Moderate: too clayey, large stones.	Moderate: shrink-swell, large stones.	Moderate: shrink-swell, large stones.	Moderate: shrink-swell, slope, large stones.	Severe: low strength.	Severe: large stones.
4C Braddock	Moderate: too clayey, large stones, slope.	Moderate: shrink-swell, slope, large stones.	Moderate: shrink-swell, slope, large stones.	Severe: slope.	Severe: low strength.	Severe: large stones.
4D Braddock	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, low strength.	Severe: large stones, slope.
5C*:						
Braddock	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: shrink-swell, slope.	Severe: slope.	Severe: low strength.	Moderate: slope.
Urban land	Variable	Variable	Variable	Variable	Variable	Variable.
6C*:						
Carbo	Severe: depth to rock.	Severe: shrink-swell.	Severe: depth to rock, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: slope, depth to rock.

See footnote at end of table.

Table 10.--Building Site Development--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
6C*:						
Rock outcrop-----	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: slope, depth to rock.	Severe: depth to rock.	Severe: depth to rock.
6E*:						
Carbo----------	Severe: depth to rock, slope.	Severe: shrink-swell, slope.	Severe: depth to rock, slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength, slope.	Severe: slope.
Rock outcrop-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.
7C---------- Catoctin	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: slope, depth to rock.	Moderate: droughty, slope.
7D---------- Catoctin	Severe: slope, depth to rock.	Severe: slope.	Severe: slope, depth to rock.	Severe: slope.	Severe: slope.	Severe: slope.
8F*:						
Catoctin---------	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
Rock outcrop-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.
9C---------- Chilhowie	Severe: depth to rock.	Severe: shrink-swell.	Severe: depth to rock, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell.	Moderate: large stones, slope.
9D---------- Chilhowie	Severe: depth to rock, slope.	Severe: shrink-swell, slope.	Severe: depth to rock, slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: slope.
10A---------- Combs	Moderate: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.
11B---------- Cotaco	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: wetness.	Moderate: wetness.
12A---------- Craigsville	Severe: cutbanks cave, large stones.	Severe: flooding, large stones.	Severe: flooding, large stones.	Severe: flooding, large stones.	Severe: flooding, large stones.	Severe: large stones, flooding.
13C---------- Dekalb	Severe: depth to rock, cutbanks cave.	Moderate: slope, depth to rock, large stones.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, large stones.	Severe: small stones.

See footnote at end of table.

Table 10.--Building Site Development--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
13D, 13E, 14E, 14F---- Dekalb	Severe: depth to rock, cutbanks cave, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
15F*: Dekalb----------	Severe: depth to rock, cutbanks cave, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
Edgemont---------	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Rock outcrop ----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.
16B---------- Dyke	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
16C---------- Dyke	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
17C*: Edgemont---------	Severe: cutbanks cave.	Moderate: slope.	Moderate: depth to rock, slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: small stones, large stones, slope.
Dekalb----------	Severe: depth to rock, cutbanks cave.	Moderate: slope, depth to rock, large stones.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, large stones.	Severe: small stones.
17D*, 17E*: Edgemont---------	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Dekalb----------	Severe: depth to rock, cutbanks cave, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
18C---------- Edneytown	Severe: cutbanks cave.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: slope.
18D, 18E---------- Edneytown	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
19C---------- Edom	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.

See footnote at end of table.

Table 10.--Building Site Development--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
19D---------- Edom	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
20B, 20C---------- Fauquier	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
20D, 20E---------- Fauquier	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
21C---------- Fauquier	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink swell.	Severe: slope.	Severe: low strength.	Moderate: slope, large stones.
21D---------- Fauquier	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
22C---------- Gilpin	Moderate: slope, depth to rock.	Moderate: slope.	Moderate: slope, depth to rock.	Severe: slope.	Moderate: slope, frost action.	Moderate: slope, thin layer.
23D, 23E --- Gilpin	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: small stones, large stones, slope.
24A---------- Huntington	Moderate: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding, frost action.	Moderate: flooding.
25C--- Jefferson	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: small stones, slope.
25D, 25E, 26E----- Jefferson	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
27C---------- Laidig	Moderate: wetness, slope.	Moderate: slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: small stones, droughty, slope.
28C---------- Laidig	Moderate: wetness, slope.	Moderate: slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: small stones, large stones, slope.
28D, 28E---------- Laidig	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
29B---------- Lodi	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
29C---------- Lodi	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.

See footnote at end of table.

Table 10.--Building Site Development--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
29D, 29E---------- Lodi	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
30C---------- Massanutten	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, frost action.	Moderate: small stones, droughty, slope.
31C---------- Massanutten	Severe: depth to rock.	Moderate: slope, depth to rock.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, frost action.	Moderate: small stones, large stones, slope.
31D, 31E---------- Massanutten	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
32A---------- Maurertown	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness, low strength, frost action.	Severe: wetness.
33B---------- Monongahela	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: wetness, frost action.	Moderate: wetness.
33C---------- Monongahela	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Moderate: wetness, slope, frost action.	Moderate: wetness, slope.
34C*						
Myersville-------	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: low strength.	Moderate: large stones, slope.
Catoctin---------	Severe: depth to rock.	Moderate: slope, depth to rock, large stones.	Severe: depth to rock.	Severe: slope.	Moderate: depth to rock, slope, large stones.	Moderate: large stones, droughty, slope.
34D*:						
Myersville-------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Catoctin---------	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
34E*:						
Myersville-------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Catoctin---------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.

See footnote at end of table.

Table 10.--Building Site Development--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
35D*, 35E*:						
Myersville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: large stones, slope.
Catoctin	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
36B	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Moderate: droughty.
Oaklet						
36C	Moderate: too clayey, slope.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: droughty, slope.
Oaklet						
37C*:						
Oaklet	Moderate: too clayey, slope.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: droughty, slope.
Carbo	Severe: depth to rock.	Severe: shrink-swell.	Severe: depth to rock, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: slope, depth to rock.
37E*:						
Oaklet	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength, slope.	Severe: slope.
Carbo	Severe: depth to rock, slope.	Severe: shrink-swell, slope.	Severe: depth to rock, slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength, slope.	Severe: slope.
38D*, 38E*, 38F*:						
Peaks	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, large stones, slope.
Edneytown	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
39F*:						
Peaks	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: small stones, large stones, slope.
Rock outcrop	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.
40*	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.
Pits, quarry						

See footnote at end of table.

Table 10.--Building Site Development--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
41A---------- Purdy	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: low strength, ponding, frost action.	Severe: ponding.
42F*:						
Rock outcrop-----	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.
Drall----------	Severe: cutbanks cave, slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones, droughty, slope.
Dekalb----------	Severe: slope, depth to rock.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope, small stones.
43B---------- Sherando	Severe: cutbanks cave.	Moderate: large stones.	Moderate: large stones.	Moderate: slope, large stones.	Moderate: large stones.	Severe: large stones.
43C---------- Sherando	Severe: cutbanks cave.	Moderate: slope, large stones.	Moderate: slope, large stones.	Severe: slope.	Moderate: slope, large stones.	Severe: large stones.
44A---------- Sindion	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding, frost action.	Moderate: wetness, flooding.
45D*, 45E*:						
Sylvatus----------	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: slope, depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock, slope.
Sylco----------	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope.
46B---------- Thurmont	Moderate: wetness.	Slight---------	Moderate: wetness.	Moderate: slope.	Moderate: frost action.	Slight.
46C---------- Thurmont	Moderate: wetness, slope.	Moderate: slope.	Moderate: wetness, slope.	Severe: slope.	Moderate: slope, frost action.	Moderate: slope.
46D---------- Thurmont	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
47B---------- Timberville	Moderate: too clayey.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding, frost action.	Slight.
48A---------- Tygart	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: wetness.

See footnote at end of table.

Table 10.--Building Site Development--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
49B--- Unison	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Moderate: large stones.
49C --- Unison	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: large stones, slope.
49D--- Unison	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
50D*, 50E*: Weikert---	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: depth to rock.
Berks---	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: small stones, slope.
51F--- Weikert	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: depth to rock.
52B--- Wheeling	Slight---	Slight---	Slight---	Moderate: slope.	Moderate: frost action, low strength.	Slight.
53D, 53E--- Zepp	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
54E--- Zepp	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: large stones, slope.
55A--- Zoar	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: low strength.	Slight.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 11.--General Corrective Measures for Limitations for Dwellings With or Without Basements

(Consult office of local building inspector for specific requirements)

Limiting factors	Corrective measures
Depth to soft rock	Excavate rock with machinery
Depth to hard rock	Remove rock by blasting
Flooding	Not a recommended use
Large stones	Remove stones
Shrinking and swelling	Maintain constant moisture; strengthen foundation
Slope	Design dwelling placement parallel to the slope
Wetness	Provide surface and subsurface drainage to remove water from foundation

Table 12.--General Corrective Measures for Limitations for Lawns and Landscaping

(Consult the local office of the Cooperative Extension Service for specific requirements)

Limiting factors	Corrective measures
Depth to rock	Select shallow-rooted plant materials; plant in built-up beds
Flooding	Not a recommended use
Large stones	Excavate and remove stones
Small stones	Screen and remove stones
Droughty	Maintain adequate moisture for selected plant species
Slope	Design landscaping to minimize runoff and maintenance
Wetness	Provide surface and subsurface drainage to remove excess water

Table 13.--Sanitary Facilities

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
1C*:					
Berks	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: depth to rock, small stones.
Weikert	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock.	Poor: depth to rock, seepage, small stones.
2A Biltmore	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: seepage, too sandy.
3B Braddock	Moderate: percs slowly.	Severe: seepage.	Severe: seepage, too clayey.	Slight	Poor: too clayey, hard to pack.
3C Braddock	Moderate: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage, too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
3D Braddock	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
4B Braddock	Moderate: percs slowly, large stones.	Severe: seepage, large stones.	Severe: seepage, too clayey.	Slight	Poor: too clayey, hard to pack, large stones.
4C Braddock	Moderate: percs slowly, slope, large stones.	Severe: seepage, slope, large stones.	Severe: seepage, too clayey.	Moderate: slope.	Poor: too clayey, hard to pack, large stones.
4D Braddock	Severe: slope.	Severe: seepage, slope, large stones.	Severe: seepage, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, large stones.
5C*:					
Braddock	Moderate: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage, too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
Urban land	Variable	Variable	Variable	Variable	Variable.
6C*:					
Carbo	Severe: depth to rock, percs slowly.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.

See footnote at end of table.

Table 13.--Sanitary Facilities--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
6C*:					
Rock outcrop---- --	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
6E*:					
Carbo----------	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: depth to rock, too clayey, hard to pack.
Rock outcrop-------	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock, slope.
7C---------- Catoctin	Severe: depth to rock.	Severe: slope, depth to rock, seepage.	Severe: depth to rock, seepage.	Severe: seepage, depth to rock.	Poor: depth to rock, small stones.
7D---------- Catoctin	Severe: slope, depth to rock.	Severe: slope, depth to rock, seepage.	Severe: slope, depth to rock, seepage.	Severe: slope, depth to rock, seepage.	Poor: depth to rock, small stones, slope.
8F*					
Catoctin - -- - -	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.
Rock outcrop-------	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock, slope.
9C---------- Chilhowie	Severe: depth to rock, percs slowly.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
9D---------- Chilhowie	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: depth to rock, too clayey, hard to pack.
10A---------- Combs	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding, seepage.	Severe: flooding, seepage.	Good.
11B---------- Cotaco	Severe: wetness.	Severe: seepage.	Severe: wetness.	Severe: seepage, wetness.	Poor: small stones.
12A---------- Craigsville	Severe: flooding, poor filter, large stones.	Severe: seepage, flooding, large stones.	Severe: flooding, seepage, large stones.	Severe: flooding, seepage.	Poor: seepage, large stones.

See footnote at end of table.

Table 13. Sanitary Facilities--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
13C---------- Dekalb	Severe: depth to rock, poor filter.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: depth to rock, small stones.
13D, 13E, 14E, 14F-- Dekalb	Severe: depth to rock, poor filter, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.
15F*: Dekalb	Severe: depth to rock, poor filter, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.
Edgemont----------	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: seepage, small stones, slope.
Rock outcrop-------	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock, slope.
16B---------- Dyke	Moderate: percs slowly.	Moderate: seepage, slope.	Severe: too clayey.	Slight----------	Poor: too clayey, hard to pack.
16C---------- Dyke	Moderate: percs slowly, slope.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
17C*: Edgemont----------	Moderate: depth to rock, percs slowly, slope.	Severe: seepage, slope.	Severe: depth to rock, seepage.	Severe: seepage.	Poor: seepage, small stones.
Dekalb----------	Severe: depth to rock, poor filter.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: depth to rock, small stones.
17D*, 17E*: Edgemont----------	Severe: slope.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: seepage, small stones, slope.
Dekalb----------	Severe: depth to rock, poor filter, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.
18C---------- Edneytown	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too sandy, slope.

See footnote at end of table.

Table 13.--Sanitary Facilities--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
18D, 18E---------- Edneytown	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
19C---------- Edom	Severe: percs slowly.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock, slope.	Poor: too clayey, hard to pack.
19D---------- Edom	Severe: percs slowly, slope.	Severe: slope.	Severe: depth to rock, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
20B, 20C---------- Fauquier	Moderate: depth to rock, percs slowly.	Moderate: seepage, depth to rock, slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock.	Poor: too clayey, hard to pack.
20D, 20E---------- Fauquier	Severe: slope.	Severe: slope.	Severe: depth to rock, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
21C---------- Fauquier	Moderate: depth to rock, percs slowly, slope.	Severe: slope.	Severe: depth to rock, too clayey.	Moderate: depth to rock, slope.	Poor: too clayey, hard to pack, small stones.
21D---------- Fauquier	Severe: slope.	Severe: slope.	Severe: depth to rock, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, small stones.
22C---------- Gilpin	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: area reclaim, thin layer.
23D, 23E---------- Gilpin	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
24A---------- Huntington	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Good.
25C---------- Jefferson	Moderate: slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too clayey, small stones, slope.
25D, 25E, 26E------- Jefferson	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
27C, 28C---------- Laidig	Severe: wetness, percs slowly.	Severe: seepage, slope, wetness.	Moderate: wetness, slope.	Severe: seepage.	Poor: small stones.

See footnote at end of table.

Table 13.--Sanitary Facilities--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
28D, 28E---------- Laidig	Severe: wetness, percs slowly, slope.	Severe: seepage, slope, wetness.	Severe: slope.	Severe: seepage, slope.	Poor: small stones, slope.
29B---------- Lodi	Moderate: percs slowly.	Moderate: seepage, slope.	Severe: too clayey.	Slight----------	Poor: too clayey, hard to pack.
29C---------- Lodi	Moderate: percs slowly, slope.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
29D, 29E---------- Lodi	Severe: slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
30C Massanutten	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: depth to rock.
31C---------- Massanutten	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: depth to rock, large stones, thin layer.
31D, 31E Massanutten	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, large stones, slope.
32A---------- Maurertown	Severe: wetness, percs slowly.	Slight----------	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
33B---------- Monongahela	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Fair: small stones, wetness.
33C---------- Monongahela	Severe: wetness, percs slowly.	Severe: slope, wetness.	Severe: wetness.	Moderate: wetness, slope.	Fair: small stones, slope, wetness.
34C*: Myersville----------	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, small stones, slope.
Catoctin----------	Severe: depth to rock.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage.	Severe: depth to rock, seepage.	Poor: depth to rock, small stones.

See footnote at end of table.

Table 13.--Sanitary Facilities--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
34D*:					
Myersville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Catoctin	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.
34E*:					
Myersville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
Catoctin	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
35D*, 35E*:					
Myersville	Severe: slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Poor: slope.
Catoctin	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.
36B Oaklet	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
36C Oaklet	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
37C*:					
Oaklet	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
Carbo	Severe: depth to rock, percs slowly.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: depth to rock, too clayey, hard to pack.
37E*:					
Oaklet	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
Carbo	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: depth to rock, too clayey, hard to pack.
38D*, 38E*, 38F*:					
Peaks	Severe: depth to rock, poor filter, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.

See footnote at end of table.

Table 13.--Sanitary Facilities--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
38D*, 38E*, 38F*:					
Edneytown	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
39F*:					
Peaks	Severe: depth to rock, poor filter, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.
Rock outcrop	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock, slope.
40*					
Pits, quarry	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock.
41A					
Purdy	Severe: ponding, percs slowly.	Severe: ponding.	Severe: ponding, too clayey.	Severe: ponding.	Poor: too clayey, hard to pack, ponding.
42F*:					
Rock outcrop	Severe: depth to rock.	Severe: depth to rock, slope.	Severe: depth to rock.	Severe: depth to rock.	Poor: depth to rock, slope.
Drall	Severe: slope, poor filter.	Severe: seepage, slope.	Severe: depth to rock, seepage, slope.	Severe: seepage, slope.	Poor: seepage, too sandy, small stones.
Dekalb	Severe: depth to rock, poor filter, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: slope, small stones, area reclaim.
43B					
Sherando	Severe: poor filter.	Severe: seepage, large stones.	Severe: seepage, large stones.	Severe: seepage.	Poor: seepage, large stones.
43C					
Sherando	Severe: poor filter.	Severe: seepage, slope, large stones.	Severe: seepage, large stones.	Severe: seepage.	Poor: seepage, large stones.
44A					
Sindion	Severe: flooding, wetness.	Severe: seepage, flooding, wetness.	Severe: flooding, seepage, wetness.	Severe: flooding, wetness.	Fair: too clayey, wetness.
45D*, 45E*:					
Sylvatus	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.

See footnote at end of table.

Table 13.--Sanitary Facilities--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
45D*, 45E*:					
Sylco	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: depth to rock, small stones, slope.
46B	Moderate: wetness, percs slowly.	Moderate: seepage, slope, wetness.	Severe: wetness.	Moderate: wetness.	Fair: small stones.
46C	Moderate: wetness, percs slowly, slope.	Severe: slope.	Severe: wetness.	Moderate: slope, wetness.	Fair: small stones, slope.
46D	Severe: slope.	Severe: slope.	Severe: wetness, slope.	Severe: slope.	Poor: slope.
47B	Moderate: flooding, percs slowly.	Moderate: seepage, slope.	Severe: too clayey.	Moderate: flooding.	Poor: too clayey, hard to pack, small stones.
48A	Severe: percs slowly, wetness.	Severe: wetness.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
49B	Moderate: percs slowly.	Severe: seepage.	Severe: seepage, too clayey.	Slight	Poor: too clayey, hard to pack, small stones.
49C	Moderate: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage, too clayey.	Moderate: slope.	Poor: too clayey, hard to pack, small stones.
49D	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, small stones.
50D*, 50E*:					
Weikert	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, slope.	Poor: depth to rock, seepage, small stones.
Berks	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, seepage, slope.	Poor: depth to rock, small stones, slope.
51F	Severe: depth to rock, slope.	Severe: seepage, depth to rock, slope.	Severe: depth to rock, seepage, slope.	Severe: depth to rock, slope.	Poor: depth to rock, seepage, small stones.

See footnote at end of table.

Table 13.--Sanitary Facilities--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
52B---------- Wheeling	Severe: poor filter.	Severe: seepage.	Severe: seepage.	Slight----------	Fair: thin layer.
53D, 53E, 54E------- Zepp	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
55A---------- Zoar	Severe: wetness, percs slowly.	Slight----------	Severe----------	Moderate: wetness.	Poor: too clayey, hard to pack.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 14.--General Corrective Measures for Limitations for Septic Tank Absorption Fields

(Consult the local office of the Cooperative Extension Service for specific requirements)

Limiting factors	Corrective measures
Depth to rock	Special design
Flooding	Not a recommended use
Large stones	Remove stones
Percs slowly	Enlarge the absorption field
Poor filter	Enlarge the absorption field
Slope	Lay out the absorption field on the contour
Wetness	Provide surface and subsurface drainage; special design

Table 15.--Construction Materials

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
1C*:				
Berks	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Weikert	Poor: depth to rock.	Improbable: small stones.	Improbable: thin layer.	Poor: depth to rock, small stones.
2A	Good	Probable	Improbable: too sandy.	Poor: too sandy.
Biltmore				
3B, 3C	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, area reclaim, small stones.
Braddock				
3D	Fair: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, area reclaim, small stones.
Braddock				
4B, 4C	Fair: large stones.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: too clayey, large stones, area reclaim.
Braddock				
4D	Fair: large stones, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: too clayey, large stones, area reclaim.
Braddock				
5C*:				
Braddock	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, area reclaim, small stones.
Urban land	Variable	Variable	Variable	Variable.
6C*:				
Carbo	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Rock outcrop	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock.
6E*:				
Carbo	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.

See footnote at end of table.

Table 15.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
6E*:				
Rock outcrop	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, slope.
7C Catoctin	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
7D Catoctin	Poor: slope, depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
8F*:				
Catoctin	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Rock outcrop	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, slope.
9C Chilhowie	Poor: depth to rock, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
9D Chilhowie	Poor: depth to rock, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones, slope.
10A Combs	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
11B Cotaco	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
12A Craigsville	Poor: large stones.	Improbable: large stones.	Improbable: large stones.	Poor: area reclaim, small stones.
13C Dekalb	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
13D, 13E, 14E, 14F Dekalb	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
15F:				
Dekalb	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Edgemont	Poor: slope.	Probable	Probable	Poor: small stones, area reclaim, slope.

See footnote at end of table.

Table 15.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
15F:				
Rock outcrop	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, slope.
16B, 16C	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, area reclaim.
Dyke				
17C*:				
Edgemont	Fair: depth to rock.	Probable	Probable	Poor: small stones, area reclaim.
Dekalb	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
17D*, 17E*:				
Edgemont	Poor: slope.	Probable	Probable	Poor: small stones, area reclaim, slope.
Dekalb	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
18C	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, slope.
Edneytown				
18D, 18E	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Edneytown				
19C, 19D	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones, area reclaim.
Edom				
20B, 20C	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Fauquier				
20D	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Fauquier				
20E	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Fauquier				
21C	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Fauquier				
21D	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Fauquier				

See footnote at end of table.

Table 15.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
22C--- --- ------ -- Gilpin	Poor: thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
23D, 23E---------- Gilpin	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
24A - - Huntington	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
25C---------- Jefferson	Good----------	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
25D, 25E---------- Jefferson	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
26E---------- Jefferson	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
27C, 28C---------- Laidig	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
28D, 28E---------- Laidig	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
29B, 29C---------- Lodi	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
29D---------- Lodi	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
29E---------- Lodi	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
30C, 31C Massanutten	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
31D, 31E---------- Massanutten	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
32A---------- Maurertown	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
33B, 33C---------- Monongahela	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.

See footnote at end of table.

Table 15.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
34C*:				
Myersville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
Catoctin	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
34D*:				
Myersville	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Catoctin	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
34E*:				
Myersville	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Catoctin	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
35D*, 35E*:				
Myersville	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.
Catoctin	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
36B, 36C Oaklet	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
37C*:				
Oaklet	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones.
Carbo	Poor: depth to rock, shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
37E*:				
Oaklet	Poor: shrink-swell, low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones, slope.

See footnote at end of table.

Table 15.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
37E*:				
Carbo	Poor: depth to rock, shrink swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, slope.
38D*, 38E*, 38F*:				
Peaks	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Edneytown	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
39F*:				
Peaks	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Rock outcrop	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, slope.
40*	Poor:	Improbable:	Improbable:	Poor:
Pits, quarry	depth to rock.	excess fines.	excess fines.	depth to rock.
41A	Poor:	Improbable:	Improbable:	Poor:
Purdy	low strength, wetness.	excess fines.	excess fines.	too clayey, wetness.
42F*:				
Rock outcrop	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock, slope.
Drall	Poor: slope.	Improbable: thin layer.	Improbable: thin layer.	Poor: small stones, area reclaim, slope.
Dekalb	Poor: slope, area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
43B, 43C	Fair:	Improbable:	Improbable:	Poor:
Sherando	large stones.	large stones.	large stones.	large stones, area reclaim.
44A	Fair:	Improbable:	Improbable:	Poor:
Sindion	wetness.	excess fines.	excess fines.	area reclaim.
45D, 45E	Poor:	Improbable:	Improbable:	Poor:
Sylvatus	depth to rock, slope.	excess fines.	excess fines.	depth to rock small stones, slope.

See footnote at end of table.

Table 15.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
45D, 45E Sylco	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
46B Thurmont	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
46C Thurmont	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones, slope.
46D Thurmont	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
47B Timberville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim.
48A Tygart	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, too clayey.
49B, 49C Unison	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones, area reclaim.
49D Unison	Fair: shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, small stones, area reclaim.
50D*, 50E*: Weikert	Poor: depth to rock, slope.	Improbable: small stones.	Improbable: thin layer.	Poor: depth to rock, small stones, slope.
Berks	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
51F Weikert	Poor: depth to rock. slope.	Improbable: small stones.	Improbable: thin layer.	Poor: depth to rock, small stones, slope.
52B Wheeling	Fair: low strength.	Probable	Probable	Fair: small stones.
53D, 53E Zepp	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, area reclaim, slope.

See footnote at end of table.

Table 15.- Construction Materials Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
54E---------- Zepp	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones. area reclaim, slope.
55A---------- Zoar	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 16.--Water Management

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
1C*:						
Berks	Severe: seepage, slope.	Severe: thin layer.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Weikert	Severe: depth to rock, slope.	Severe: seepage.	Deep to water	Slope	Slope, large stones, depth to rock.	Large stones, slope, depth to rock.
2A*: Biltmore	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, soil blowing, flooding.	Too sandy, soil blowing.	Droughty.
3B Braddock	Severe: seepage.	Moderate: hard to pack.	Deep to water	Slope	Favorable	Favorable.
3C, 3D Braddock	Severe: seepage, slope.	Moderate: hard to pack.	Deep to water	Slope	Slope	Slope.
4B Braddock	Severe: seepage.	Severe: large stones.	Deep to water	Large stones, slope.	Large stones	Large stones.
4C, 4D Braddock	Severe: seepage, slope.	Severe: large stones.	Deep to water	Large stones, slope.	Slope, large stones.	Large stones, slope.
5C*:						
Braddock	Severe: seepage, slope.	Moderate: hard to pack.	Deep to water	Slope	Slope	Slope.
Urban land	Variable	Variable	Variable	Variable	Variable	Variable.
6C*, 6E*:						
Carbo	Severe: slope.	Severe: hard to pack.	Deep to water	Slope, percs slowly.	Slope, depth to rock, erodes easily.	Slope, erodes easily, depth to rock.
Rock outcrop	Severe: depth to rock, slope.	Slight	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
7C, 7D Catoctin	Severe: seepage, slope.	Severe: thin layer.	Deep to water	Droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
8F*:						
Catoctin	Severe: seepage, slope.	Severe: large stones.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Rock outcrop	Severe: depth to rock, slope.	Slight	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.

See footnote at end of table.

Table 16.--Water Management--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
9C, 9D---------- Chilhowie	Severe: slope.	Severe: seepage.	Deep to water--	Slope, droughty.	Slope, large stones, depth to rock.	Large stones, slope, erodes easily.
10A---------- Combs	Severe: seepage.	Severe: piping.	Deep to water--	Flooding-------	Favorable------	Favorable.
11B- -- ------- Cotaco	Moderate: seepage, slope.	Severe: piping, wetness.	Slope----------	Wetness, droughty, slope.	Erodes easily, wetness.	Erodes easily, wetness.
12A---------- Craigsville	Severe: seepage.	Severe: seepage, large stones.	Deep to water--	Large stones, droughty.	Large stones, too sandy, soil blowing.	Large stones, droughty.
13C, 13D, 13E, 14E, 14F-------- Dekalb	Severe: seepage, slope.	Severe: piping, large stones.	Deep to water--	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
15F*: Dekalb----------	Severe: seepage, slope.	Severe: piping, large stones.	Deep to water--	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Edgemont--------	Severe: seepage, slope.	Severe: seepage.	Deep to water--	Slope, droughty.	Slope, large stones.	Large stones, slope, droughty.
Rock outcrop----	Severe: depth to rock, slope.	Slight---------	Deep to water--	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
16B---------- Dyke	Moderate: seepage, slope.	Severe: hard to pack.	Deep to water--	Slope, erodes easily.	Erodes easily--	Erodes easily.
16C---------- Dyke	Severe: slope.	Severe: hard to pack.	Deep to water--	Slope, erodes easily.	Slope, erodes easily.	Slope, erodes easily.
17C*, 17D*, 17E*: Edgemont--------	Severe: seepage, slope.	Severe: seepage.	Deep to water--	Slope, droughty.	Slope, large stones.	Large stones, slope, droughty.
Dekalb----------	Severe: seepage, slope.	Severe: piping, large stones.	Deep to water--	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
18C, 18D, 18E---- Edneytown	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water--	Slope----------	Slope, too sandy.	Slope.
19C, 19D--------- Edom	Severe: slope.	Severe: thin layer.	Deep to water--	Slope----------	Slope----------	Slope.

See footnote at end of table.

Table 16.--Water Management--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
20B, 20C---------- Fauquier	Moderate: seepage, depth to rock, slope.	Severe: hard to pack.	Deep to water--	Slope----------	Favorable------	Favorable.
20D, 20E, 21C, 21D---------- Fauquier	Severe: slope.	Severe: hard to pack.	Deep to water--	Slope----------	Slope----------	Slope.
22C---------- Gilpin	Severe: slope.	Severe: thin layer.	Deep to water--	Slope, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, depth to rock.
23D, 23E--------- Gilpin	Severe: slope.	Severe: piping.	Deep to water--	Slope, large stones, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, depth to rock.
24A---------- Huntington	Moderate: seepage.	Severe: piping.	Deep to water--	Flooding-------	Favorable------	Favorable.
25C---------- Jefferson	Severe: seepage.	Severe: piping.	Deep to water--	Slope----------	Slope, soil blowing.	Slope.
25D, 25E--------- Jeffersonn	Severe: seepage, slope.	Severe: piping.	Deep to water--	Slope----------	Slope, soil blowing.	Slope.
26E---------- Jefferson	Severe: seepage, slope.	Severe: piping.	Deep to water--	Slope----------	Slope, large stones.	Large stones, slope.
27C, 28C, 28D, 28E---------- Laidig	Severe: seepage, slope.	Severe: piping.	Percs slowly, slope.	Slope, wetness, droughty.	Slope, large stones, wetness.	Large stones, slope, droughty.
29B---------- Lodi	Moderate: seepage, slope.	Moderate: thin layer, hard to pack.	Deep to water--	Slope, soil blowing.	Erodes easily.	Erodes easily.
29C, 29D, 29E---- Lodi	Severe: slope.	Moderate: thin layer, hard to pack.	Deep to water--	Slope, soil blowing.	Slope, erodes easily.	Slope, erodes easily.
30C---------- Massanutten	Severe: seepage, slope.	Severe: thin layer, piping.	Deep to water--	Slope, depth to rock.	Slope, droughty, depth to rock.	Slope, droughty, depth to rock.
31C, 31D, 31E---- Massanutten	Severe: seepage, slope.	Severe: thin layer, piping.	Deep to water--	Slope, droughty, depth to rock.	Slope, depth to rock.	Slope, droughty, depth to rock.
32A---- ------ Maurertown	Slight-------	Severe: hard to pack, wetness.	Percs slowly, frost action.	Wetness, percs slowly, erodes easily.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.

See footnote at end of table.

Table 16.--Water Management--Continued

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
33B Monongahela	Moderate: seepage, slope.	Severe: piping.	Percs slowly, slope.	Slope, wetness, percs slowly.	Erodes easily, wetness.	Erodes easily, rooting depth.
33C Monongahela	Severe: slope.	Severe: piping.	Percs slowly, slope.	Slope, wetness, percs slowly.	Slope, erodes easily, wetness.	Slope, erodes easily, rooting depth.
34C*, 34D*: Myersville	Severe: slope.	Moderate: thin layer, piping, large stones.	Deep to water--	Slope	Slope, large stones.	Large stones, slope.
Catoctin	Severe: seepage, slope.	Severe: thin layer.	Deep to water--	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
34E*: Myersville	Severe: slope.	Moderate: thin layer, piping, large stones.	Deep to water--	Slope	Slope, large stones.	Large stones, slope.
Catoctin	Severe: slope.	Moderate: thin layer. piping, large stones.	Deep to water--	Slope	Slope, large stones.	Large stones, slope.
35D*, 35E*: Myersville	Severe: slope.	Moderate: thin layer, piping, large stones.	Deep to water--	Slope, large stones.	Slope, large stones.	Large stones, slope.
Catoctin	Severe: seepage, slope.	Severe: large stones.	Deep to water--	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
36B Oaklet	Moderate: slope.	Severe: hard to pack.	Deep to water--	Slope, droughty, percs slowly.	Erodes easily, percs slowly.	Erodes easily, droughty.
36C Oaklet	Severe: slope.	Severe: hard to pack.	Deep to water--	Slope, droughty, percs slowly.	Slope, erodes easily, percs slowly.	Slope, erodes easily, droughty.
37C*, 37E*: Oaklet	Severe: slope.	Severe: hard to pack.	Deep to water--	Slope, droughty, percs slowly.	Slope, erodes easily, percs slowly.	Slope, erodes easily, droughty.
Carbo	Severe: slope.	Severe: hard to pack.	Deep to water--	Slope, percs slowly.	Slope, depth to rock, erodes easily.	Slope, erodes easily, depth to rock.

See footnote at end of table.

Table 16.--Water Management--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
38D*, 38E*, 38F*:						
Peaks	Severe: seepage, slope.	Severe: seepage, large stones.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Edneytown	Severe: seepage, slope.	Severe: seepage, piping.	Deep to water	Slope	Slope, too sandy.	Slope.
39F*:						
Peaks	Severe: seepage, slope.	Severe: seepage, large stones.	Deep to water	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Rock outcrop	Severe: depth to rock, slope.	Slight	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
40* Pits, quarry	Severe: depth to rock.	Slight	Deep to water	Depth to rock	depth to rock	Depth to rock.
41A Purdy	Slight	Severe: hard to pack, ponding.	Ponding, percs slowly, frost action.	Ponding, percs slowly.	Erodes easily, ponding, percs slowly.	Wetness, erodes easily, percs slowly.
42F*:						
Rock outcrop	Severe: depth to rock, slope.	Slight	Deep to water	Slope, depth to rock.	Slope, depth to rock.	Slope, depth to rock.
Drall	Severe: seepage, slope.	Severe, seepage, large stones.	Deep to water	Large stones, droughty, slope.	Slope, large stones, too sandy.	Large stones, slope, deoughty.
Dekalb	Severe: seepage, slope.	Severe: piping, large stones.	Deep to water	Slope, droughty, depth to rock.	Slope, large stones, depth to rock.	Slope, large stones, droughty.
43B Sherando	Severe: seepage.	Severe: seepage, large stones.	Deep to water	Large stones, droughty, slope.	Large stones	Large stones, droughty.
43C Sherando	Severe: seepage, slope.	Severe: seepage, large stones.	Deep to water	Large stones, droughty, slope.	Slope, large stones.	Large stones, slope, droughty.
44A Sindion	Severe: seepage.	Severe: piping, wetness.	Flooding, frost action.	Wetness, flooding.	Wetness	Favorable.
45D*, 45E*:						
Sylvatus	Severe: depth to rock, slope.	Severe: thin layer.	Deep to water	Slope, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
Sylco	Severe: slope.	Severe: piping.	Deep to water	Slope, droughty, depth to rock.	Slope, large stones, depth to rock.	Large stones, slope, droughty.

See footnote at end of table.

Table 16.--Water Management--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Terraces and diversions	Grassed waterways
46B--- Thurmont	Moderate: seepage, slope.	Moderate: thin layer, piping.	Deep to water--	Slope---	Favorable---	Favorable.
46C, 46D--- Thurmont	Severe: slope.	Moderate: thin layer, piping.	Deep to water--	Slope---	Slope---	Slope.
47B--- Timberville	Moderate: seepage, slope.	Moderate: piping, hard to pack.	Deep to water--	Slope---	Favorable---	Favorable.
48A--- Tygart	Slight---	Severe: hard to pack, wetness.	Percs slowly---	Wetness, percs slowly, erodes easily.	Erodes easily, percs slowly, wetness.	Percs slowly, wetness, erodes easily.
49B--- Unison	Severe: seepage.	Moderate: thin layer, hard to pack, large stones.	Deep to water--	Slope---	Large stones---	Large stones.
49C, 49D--- Unison	Severe: seepage, slope.	Moderate: thin layer, hard to pack, large stones.	Deep to water--	Slope---	Slope, large stones.	Large stones, slope.
50D*, 50E*: Weikert---	Severe: depth to rock, slope.	Severe: seepage.	Deep to water--	Slope---	Slope, large stones, depth to rock.	Large stones, slope, depth to rock.
Berks---	Severe: seepage, slope.	Severe: thin layer.	Deep to water--	Slope, large stones, droughty.	Slope, large stones, depth to rock.	Large stones, slope, droughty.
51F--- Weikert	Severe: depth to rock, slope.	Severe: seepage.	Deep to water--	Slope---	Slope, large stones, depth to rock.	Large stones, slope, depth to rock.
52B--- Wheeling	Moderate: seepage, slope.	Severe: piping.	Deep to water--	Slope---	Favorable---	Favorable.
53D, 53E, 54E--- Zepp	Severe: seepage, slope.	Moderate: large stones.	Deep to water--	Slope---	Slope, large stones.	Large stones, slope.
55A--- Zoar	Slight---	Severe: hard to pack.	Percs slowly---	Wetness, percs slowly, erodes slowly.	Erodes easily, wetness.	Erodes easily, percs slowly.

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 17.--Engineering Index Properties

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number				Liquid limit	Plas-ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
1C*:											
Berks	0-2	Channery silt loam.	GM, ML, GC, SC	A-2, A-4	0-20	50 80	45 70	40 60	30 55	25-36	5-10
	2-12	Channery loam, very channery loam, channery silt loam.	GM, GC, SM, SC	A-1, A-2, A-4	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	12-30	Channery loam, very channery loam, channery silt loam.	GM, SM, GM-GC	A-1, A-2	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	30	Weathered bedrock	---	---	---	---	---	---	---	---	---
Weikert	0-3	Channery silt loam.	GM, ML, SM	A-1, A-2, A-4	0-10	35-70	35-70	25-65	20-55	30-40	4-10
	3-18	Channery loam, very channery silt loam, gravelly loam.	GM, GP-GM	A-1, A-2	0-20	15-60	10-55	5-45	5-35	28-36	3 9
	18	Weathered bedrock	---	---	---	---	---	---	---	---	---
2A Biltmore	0-7	Fine sandy loam	SM	A-2-4, A-4	0-5	95-100	90-100	60-95	20-49	22-30	NP-4
	7-72	Loamy sand, sand, fine sand.	SM, SP-SM	A-2-4, A-3	0-8	95-100	85-100	55-96	5-35	<20	NP
3B, 3C, 3D Braddock	0-7	Loam	CL, SM, ML, SC	A-2, A-4	0-5	85-100	75 100	50 85	25-65	<30	NP-10
	7-43	Clay loam, gravelly clay, very gravelly sandy clay.	CH, CL, SC, GC	A-7, A-2	0-15	80-100	30-100	25-95	20-90	42-66	15-35
	43-62	Loam, very cobbly sandy clay loam, extremely cobbly clay.	SC, CL, GM, GC	A-2, A-4, A-6, A-7	0-75	75-95	30-90	25 85	20 70	25 50	8-28
4B, 4C, 4D Braddock	0-7	Cobbly loam	SM, SC, CL, ML	A-2, A-4	25-50	75-100	70-95	50-85	25-65	<30	NP-10
	7-43	Cobbly sandy clay, cobbly clay loam, very cobbly clay.	SC, CL, CH	A-2, A-7	25-50	75-95	70-90	60-85	30-80	42-66	15-35
	43-62	Cobbly loam, very cobbly sandy clay loam, extremely cobbly clay.	SC, CL	A-2, A-4, A-6, A-7	20-75	70-85	30-80	25-70	20-65	25-50	8-28

See footnote at end of table.

Table 17.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
5C*:											
Braddock--------	0-7	Loam----------	CL, SM, ML, SC	A-2, A-4	0-5	85-100	75-100	50-85	25-65	<30	NP-10
	7-43	Clay loam, gravelly clay, very gravelly sandy clay.	CH, CL, SC, GC	A-7, A-2	0-15	80-100	30-100	25-95	20-90	42-66	15-35
	43-62	Loam, very cobbly sandy clay loam, extremely cobbly clay.	SC, CL, GM, GC	A-2, A-4, A-6, A-7	0-75	75-95	30-90	25-85	20-70	25-50	8-28
Urban land------	0-6	Variable---------	---	---	---	---	---	---	---	---	---
6C*, 6E*:											
Carbo-----------	0-7	Silt loam--------	CL	A-6, A-7	0-2	95-100	90-100	85-95	75-85	30-50	10-25
	7-38	Clay----------	CH	A-7	0-5	95-100	85-100	80-95	70-90	60-80	35-55
	38	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
7C, 7D---------- Catoctin	0-4	Silt loam--------	ML, CL, CL-ML	A-4	0-5	80-95	80-90	60-85	50-80	<30	NP-8
	4-15	Channery silt loam, channery silty clay loam, very channery silt loam.	SM, SC, CL, GM	A-2, A-4, A-6	0-25	50-80	35-75	30-60	25-60	20-34	2-12
	15-36	Very channery silt loam, channery silt loam,	SM, GM, GC, SC	A-2, A-4, A-1, A-3	10-40	30-75	10-60	9-55	7-50	<28	NP 8
	36	Weathered bedrock	---	---	---	---	---	---	---	---	---
8F*:											
Catoctin--------	0-4	Extremely stony silt loam.	ML, CL, CL-ML	A-4	20-50	80-90	75-85	70-80	60-70	<30	NP-8
	4-15	Channery silt loam, channery silty clay loam, cobbly silt loam, very channery silt loam.	SM, SC, CL, GM	A-2, A-4, A-6	0-25	50-80	35-75	30-60	25-60	20 34	2-12
	15-36	Very channery silt loam, channery silt loam.	SM, SC, GC, GM	A-2, A-4, A-1, A-3	10-40	30-75	10-60	9-55	7-50	<28	NP-8
	36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

Table 17.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
9C, 9D---------- Chilhowie	0-8	Silty clay loam	CL	A-6, A-7	0-10	90-100	85-100	80-100	75-95	30-50	10-25
	8-20	Clay, silty clay	CH	A-7	0-10	90-100	85-100	80-100	75-95	50-65	30-45
	20-36	Extremely channery clay, very channery silty clay, flaggy clay.	CH, GC, SM, GM	A-7, A-2	10-30	25-80	15-65	15-65	15-60	50-65	20-35
	36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
10A---------- Combs	0-18	Fine sandy loam	SM, SC-SM, ML, CL-ML	A-2, A-4	0	90-100	75-100	60-85	25-55	<25	NP-5
	18-44	Loam, fine sandy loam, silt loam.	SM, SC-SM, ML, CL-ML	A-2, A-4	0	90-100	75-100	65-100	30-80	<25	NP-5
	44-62	Loam, fine sandy loam, sandy clay loam.	SM, SC-SM, ML, CL-ML	A-2, A-4	0	90-100	75-100	65-100	30-80	<25	NP-8
11B---------- Cotaco	0-9	Loam----------	ML, CL-ML, SM, SC-SM	A-4	0-5	80-100	75-95	55-85	35-80	<30	NP-7
	9 52	Gravelly sandy clay loam, clay loam, silt loam, loam.	SC, SM, GC, CL	A-2, A-4, A-6, A-1-B	0-10	60-100	50-95	40-90	20-80	<35	NP 15
	52-72	Gravelly silt loam, clay loam, loam.	SC, SM, GC, CL	A-2, A-4, A-6, A-1-B	0-10	60-100	50-95	40-90	20-80	<35	NP-15
12A ---------- Craigsville	0-7	Cobbly sandy loam	ML, SM, CL-ML, SC	A-2, A-4	25-50	80-95	75-95	50-80	25-60	<25	NP-10
	7-34	Gravelly sandy loam, cobbly loam, very gravelly sandy loam.	SM, GM, GC, SC	A 1, A 2, A-4	25 60	50 80	30 65	25 60	15-40	<25	NP-10
	34-62	Very gravelly loamy sand, very gravelly sandy loam, very cobbly sandy loam.	GC, GM, GP-GM, GM-GC	A-1, A-2	35-75	35-55	30-50	20-45	10-25	<25	NP-8
13C, 13D, 13E---- Dekalb	0-4	Very stony sandy loam.	SM, GM, ML, CL-ML	A-2, A-4, A-1	10-30	50-90	45-80	40-75	20-55	10-32	NP-10
	4-38	Channery sandy loam, channery loam, very channery sandy loam.	SM, GM, ML, GM-GC	A 2, A 4, A-1	5 40	50 85	40 75	40 75	20 55	15-32	NP-9
	38	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

Table 17.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
14E, 14F--------- Dekalb	0-4	Extremely stony sandy loam.	SM, GM, ML, CL-ML	A-2, A-4, A 1	15-30	50-90	45-80	40-75	20-55	10-32	NP-10
	4-38	Channery sandy loam, channery loam, very channery sandy loam.	SM, GM, ML, GM-GC	A 2, A-4, A-1	5-40	50-85	40-75	40-75	20-55	15-32	NP-9
	38	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
15F*: Dekalb--	0 4	Extremely stony sandy loam.	SM, GM, ML, CL-ML	A-2, A-4, A-1	15-30	50-90	45-80	40-75	20-55	10-32	NP-10
	4-38	Channery sandy loam, channery loam, very channery sandy loam.	SM, GM, ML, GM-GC	A-2, A-4, A-1	5-40	50-85	40-75	40-75	20-55	15-32	NP-9
	38	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Edgemont---------	0-12	Extremely stony sandy loam.	SM, GM, ML	A-2, A-4	15-25	55-100	50-95	35-90	15-80	---	---
	12-36	Fine sandy loam, channery sandy clay loam, channery loam, very channery loam, gravelly clay loam.	SM, GM, GP-GM, SP-SM	A-2, A-1, A-4	0-15	55-95	50-90	30-65	10-40	<31	NP-8
	36-52	Sandy loam, channery loamy sand, very channery loamy sand, very gravelly clay clay loam.	GM, SM, SP-SM, GP-GM	A-1, A-2, A-3, A-4	5-25	35-75	10-70	10-65	5-45	<31	NP-6
Rock outcrop----	0-60	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
16B, 16C--------- Dyke	0-8	Loam----------	CL	A-6	0-5	90-100	75-100	70-100	60-90	20-35	10-20
	8-44	Clay, silty clay, clay loam.	MH, CH, ML, CL	A-7, A-6	0-15	85-100	75-100	65-90	55-80	35-60	10-30
	44-72	Cobbly clay loam, very cobbly clay loam.	MH, SM, GM	A-7	35 70	65 85	55 75	45 70	40 60	70-80	30-40

See footnote at end of table.

Table 17. -Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
17C*, 17D*, 17E*:											
Edgemont	0-12	Very stony sandy loam.	SM, GM, ML	A 2, A 4	3-15	55-100	50-95	35-90	15-80	---	---
	12-36	Fine sandy loam, channery sandy clay loam, channery loam, very channery loam, gravelly clay loam.	SM, GM, GP-GM, SP-SM	A-2, A-1, A-4	0-15	55-95	50-90	30-65	10-40	<31	NP-8
	36-52	Sandy loam, channery loamy sand, very channery loamy sand, very gravelly clay loam.	GM, SM, SP-SM, GP-GM	A-1, A-2, A-3, A-4	5-25	35-75	10-70	10-65	5-45	<31	NP 6
Dekalb	0-4	Very stony sandy loam.	SM, GM, ML, CL-ML	A-2, A-4, A-1	10-30	50-90	45 80	40 75	20 55	10-32	NP-10
	4-38	Channery sandy loam, channery loam, very channery sandy loam.	SM, GM, ML, GM-GC	A-2, A-4, A-1	5-40	50-85	40-75	40-75	20-55	15-32	NP-9
	38	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
18C, 18D, 18E---- Edneytown	0-12	Loam----------	SM, ML, CL-ML, SC-SM	A-2, A-4, A-5	0-2	95-100	90-100	70 85	40 70	<25	NP 7
	12-39	Sandy clay loam, clay loam.	SC, CL, CL-ML	A-4, A-6	0	98-100	95-100	80-97	45-75	25-35	5-15
	39 49	Sandy loam, sandy clay loam.	SM, SC, ML, CL	A-2, A-4	0	98-100	95-100	65-85	30-55	<25	NP-9
	49-62	Loamy sand, sandy loam, loam.	SM, SC-SM, ML, CL-ML	A-2, A-4	0	98 100	95-100	50-90	15-70	<25	NP-7
19C, 19D---------- Edom	0-8	Silty clay loam	ML, CL	A-4, A-6	0	85-100	80-100	75-95	70-90	---	---
	8-38	Silty clay, channery clay, channery silty clay loam.	CH, CL	A-7, A-6	0-10	70-90	65-85	65-85	55-80	35-55	12-30
	38-55	Channery silty clay loam, channery silty clay, shaly clay.	GM, ML, SM	A-7, A 6, A-2	5 20	25 80	20-70	15-60	15-55	35-49	10-20
	55	Weathered bedrock	---	---	---	---	---	---	---	---	---
20B, 20C, 20D, 20E---------- Fauquier	0-7	Silt loam--------	CL, CL-ML	A-4, A-6	0	80-100	75-100	65-95	50-95	22-34	4-14
	7-49	Silty clay loam, clay, silty clay.	CL, CH, MH, SC	A-6, A-7	0-5	80-100	75-100	50-95	45-95	36-70	16-36
	49-66	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

Table 17.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
21C, 21D--------- Fauquier	0-7	Very stony silt loam.	SC-SM, CL, CL-ML, GC	A-4, A-6	5-25	60-80	55-70	50-60	45-60	22-34	4-14
	7-49	Silty clay loam, clay, gravelly silty clay.	CL, CH, MH, SC	A 6, A-7	0-5	80-100	70-100	50-95	45-95	36-70	16-36
	49-66	Weathered bedrock	---	---	---	---	---	---	---	---	---
22C---------- Gilpin	0-8	Silt loam--------	CL, CL-ML	A-4, A-6	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	8-24	Channery loam, channery silt loam, silty clay loam.	GC, SC, CL, CL-ML	A-2, A-4, A-6	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	24-36	Channery loam, very channery silt loam, very channery silty clay loam.	GC, GM-GC	A-1, A-2, A-4, A-6	0-35	25-55	20-50	15-45	15-40	20-40	4-15
	36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
23D, 23E--------- Gilpin	0-8	Very stony silt loam.	GC, CL, SC, CL-ML	A-2, A-4, A-6	10-40	50-90	45-85	35-75	30-70	20-40	4-15
	8 24	Channery silt loam, channery loam, silty clay loam.	GM GC, CL, CL-ML, SC	A 2, A-4, A-5	0 30	50 95	45 90	35 85	30-80	20-40	4-15
	24-36	Channery loam, very channery silt loam, very channery silty clay loam.	GC, GM-GC	A-1, A-2, A-4, A-5	0-35	25-55	20-50	15-45	15-40	20-40	4-15
	36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
24A ---------- Huntington	0-16	Loam----------	ML, CL, CL-ML	A-4, A-6	0	95-100	95-100	85-100	60 95	25 40	5-15
	16-48	Silt loam, silty clay loam.	ML, CL, CL-ML	A-4, A-6	0	95-100	95-100	85-100	60-95	25-40	5-15
	48-70	Stratified fine sand to silty clay loam.	SM, SC, ML, CL	A-2, A-4	0-10	95-100	60-100	50-90	30-75	<30	NP-10
25C, 25D, 25E---- Jefferson	0-12	Fine sandy loam	SM, SC, ML, CL	A-2, A-4	0-5	85-95	80-90	40-80	25-65	20-35	2-10
	12-44	Gravelly loam, gravelly clay loam, gravelly sandy clay loam, sandy loam.	SM, SC, ML, CL	A-4, A-2, A-6	0-5	75-90	50-90	50-80	30-70	15-35	2 15
	44-65	Very gravelly loam, very gravelly clay loam, very gravelly sandy clay loam, sandy loam.	GM, SM, ML, GM-GC	A-2, A-4, A-1	0-5	55-75	25-75	20-70	10-60	20-35	2-10

See footnote at end of table.

Table 17.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
26E---------- Jefferson	0-12	Very stony fine sandy loam.	SM, GM, ML, CL	A-2, A-4	5-20	65-90	60-90	40-75	25-50	10-25	NP-10
	12-44	Channery loam, gravelly clay loam, gravelly sandy clay loam, sandy loam.	SM, SC, ML, CL	A-2, A-4, A-6	5-20	75-90	70-90	50-80	30-70	15-35	2-15
	44-65	Very channery loam, gravelly clay loam, gravelly sandy clay loam.	GM, SM, ML, GM-GC	A-1, A-2, A-4	5-25	55-75	50-75	35-70	20-60	20-35	2-10
27C---------- Laidig	0 5	Channery loam----	ML, CL-ML, CL	A-4	5-20	55-80	50-75	45 70	40-55	15 30	1 10
	5-41	Very channery loam, channery sandy clay loam, channery sandy loam, channery loam.	SM, SC, CL, ML	A-2, A-4, A-6	5-20	70-95	50-90	40-80	20-70	15-40	2-18
	41-62	Channery sandy clay loam, very channery loam, channery sandy loam, very channery sandy loam.	GC, SC, GM-GC, CL-ML	A-2, A-4, A-6	5-20	50-90	40-85	30-80	15-70	15-35	2-16
28C, 28D, 28E---- Laidig	0-5	Very stony loam	GM-GC, SM, CL-ML, SC-SM	A-4	3-15	65-90	50-80	45-80	35-70	15-30	NP-10
	5-41	Very channery loam, channery sandy clay loam, channery sandy loam, channery loam.	SM, SC, ML, CL	A-2, A 4, A-6	5-20	70-95	50-90	40-80	20-70	15-40	2-18
	41-62	Channery sandy clay loam, very channery loam, channery sandy loam.	SC, GM-GC, CL-ML, GC	A-2, A-4, A-6	5-20	50-90	40-85	30-80	15-70	15-35	2-16
29B, 29C, 29D, 29E---------- Lodi	0-6	Silt loam--------	ML, CL, SM, SC	A-2, A-4, A-6	0-5	80-100	75-95	50-90	25-85	<30	NP-15
	6-13	Loam, silt loam, clay loam.	CL	A-6	0-10	85-100	75-95	65-90	55-85	25-40	10-20
	13-57	Clay, silty clay loam, sandy clay loam.	CH, CL, SC	A-7	0-5	85-100	75-95	60-95	40-80	40-60	20-35
	57-84	Silty clay, sandy clay loam, loam.	ML, SM, CL, SC	A-4, A-6	0-5	85-100	75-95	60-85	40-80	<40	NP-25

See footnote at end of table.

Table 17.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	3 10 inches	4	10	40	200		
	In				Pct					Pct	
30C---------- Massanutten	0-2	Channery loam----	SM, ML	A-4	0-2	65-80	55-75	45-70	35-70	<20	NP
	2-30	Silt loam, channery silt loam, channery loam.	SM, SC-SM, ML	A-4	0-2	65-80	55-100	45-100	35-85	<25	3-10
	30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
31C, 31D, 31E---- Massanutten	0-2	Very stony loam	SM, ML	A-4	50-75	60-75	50-70	45-65	35-60	<20	NP
	2-30	Channery silt loam, channery loam, silt loam.	SM, SC-SM, ML	A-4	5-10	60-75	55-100	45-70	35-65	<25	3-10
	30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
32A---------- Maurertown	0-6	Silt loam--------	ML, CL-ML	A-4	0	90-100	85-100	80-95	55-80	<25	NP-7
	6-62	Silty clay loam, silty clay, clay.	CL, CH	A-7	0	95-100	95-100	85-100	75-95	40-75	15-45
33B, 33C--------- Monongahela	0-13	Loam----------	ML, SM, CL-ML, SC-SM	A-4	0-5	90-100	85-100	75-100	45-90	20-35	1-10
	13-24	Silt loam, clay loam, gravelly loam.	ML, CL, CL ML	A-4, A-6	0-15	90-100	80-100	75-100	70-90	20-40	5-15
	24-52	Silt loam, sandy clay loam, gravelly loam.	ML, CL, SM, SC	A-4, A-6	0-10	80-100	60-100	55-95	45-95	20-40	3-15
	52-62	Silt loam, clay loam, gravelly sandy loam.	ML, CL, SM, SC	A-4, A-6	10-20	75-100	60-90	60-85	40-85	20-40	1-15
34C*, 34D*: Myersville------	0-5	Very stony silt loam.	ML, CL, CL ML	A 4	5 20	95 100	90 100	80 95	55 85	15 28	2 10
	5-29	Silty clay loam, clay loam, channery clay loam, silt loam.	CL	A-6	3-20	75-95	70-95	55-90	50-85	28-38	12-20
	29-48	Silt loam, channery silt loam, very channery silty clay loam.	CL, CL-ML, GM, GC	A-1, A-2, A-3, A-4	3-20	30-85	20-75	12-70	8-65	<28	NP-10
	48-66	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

Table 17.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag ments	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
34C*, 34D*:											
Catoctin--------	0-4	Very stony silt loam.	ML, CL, CL-ML	A-4	5-20	80-90	75-85	70-80	60-70	<30	NP-8
	4-15	Channery silt loam, channery silty clay loam, cobbly silt loam, very channery silt loam.	SM, SC, CL, GM	A-2, A-4, A-6	0-25	50-80	35 75	30 60	25 60	20 34	2 12
	15-36	Very channery silt loam, channery silt loam.	SM, SC, GC, GM	A-2, A-4, A-1, A-3	10-40	30-75	10-60	9-55	7-50	<28	NP-8
	36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
34E*:											
Myersville------	0-5	Very stony silt loam.	ML, CL, CL-ML	A-4	5-20	95 100	90 100	80 95	55 85	15 28	2-10
	5-29	Silty clay loam, clay loam, channery clay loam.	CL	A-6	3-20	75-95	70-95	55-90	50-85	28-38	12-20
	29 48	Silt loam, channery silt loam, very channery silty clay loam.	CL, CL-ML, GM, GC	A-1, A-2, A-3, A-4	3-20	30-85	20-75	12-70	8-65	<28	NP-10
	48-66	Weathered bedrock	---	---	---	---	---	---	---	---	---
Catoctin--------	0-4	Very stony silt loam.	ML, CL, CL-ML	A-4	5-20	95-100	90-100	80-95	55-85	15-28	2-10
	4-15	Silty clay loam, clay loam, channery clay loam, very channery silt loam.	CL	A-6	3-20	75-95	70-95	55-90	50-85	28-38	12-20
	15-36	Silt loam, channery silt loam, very channery silty clay loam.	CL, CL-ML, GM, GC	A-1, A-2, A-3, A-4	3-20	30-85	20-75	12-70	8-65	<28	NP-10
	36	Weathered bedrock	---	---	---	---	---	---	---	---	---
35D*:											
Myersville------	0 5	Extremely stony silt loam.	ML, CL, CL ML	A-4	25-50	95-100	90-100	80-95	55-85	15-28	2-10
	5-29	Silty clay loam, clay loam, channery clay loam.	CL	A-6	3-20	75-95	70-95	55-90	50-85	28-38	12-20
	29 48	Silt loam, channery silt loam, very channery silty clay loam.	CL, CL-ML, GM, GC	A-1, A-2, A-3, A-4	3-20	30-85	20-75	12-70	8-65	<28	NP-10
	48-66	Weathered bedrock	---	---	---	---	---	---	---	---	---

See footnote at end of table.

Table 17.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Fragments	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
35D*:											
Catoctin--------	0-4	Extremely stony silt loam.	ML, CL, CL-ML	A-4	20-50	80-90	75-85	70-80	60-70	<30	NP-8
	4-15	Channery silt loam, channery silty clay loam, cobbly silt loam, very channery silt loam.	SM, SC, CL, GM	A-2, A-4, A-6	0-25	50-80	35 75	30 60	25 60	20 34	2 12
	15-36	Very channery silt loam, channery silt loam.	SM, SC, GC, GM	A 2, A 4, A 1, A 3	10 40	30 75	10-60	9 55	7-50	<28	NP-8
	36-38	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
35E*:											
Myersville------	0-5	Extremely stony silt loam.	ML, CL, CL-ML	A-4	25-50	95-100	90-100	80-95	55-85	15-28	2-10
	5-29	Silty clay loam, clay loam, channery clay loam.	CL	A-6	3-20	75-95	70-95	55-90	50-85	28-38	12-20
	29-48	Silt loam, channery silt loam, very channery silty clay loam.	CL, CL-ML, GM, GC	A-1, A-2, A-3, A-4	3-20	30-85	20-75	12-70	8-65	<28	NP-10
	48 66	Weathered bedrock	-	--	--	--	-			-	---
Catoctin--------	0-4	Extremely stony silt loam.	ML, CL, CL-ML	A-4	20-50	80-90	75-85	70-80	60-70	<30	NP-8
	4-15	Channery silt loam, channery silty clay loam, cobbly silt loam, very channery silt loam.	SM, SC, CL, GM	A-2, A-4, A-6	0-25	50-80	35-75	30-60	25-60	20-34	2-12
	15-36	Very channery silt loam, channery silt loam.	SM, SC, GC, GM	A-2, A-4, A-1, A-3	10-40	30-75	10-60	9-55	7-50	<28	NP-8
	36	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
36B, 36C---------	0-7	Silt loam--------	CL, CL-ML	A-4, A-6	0-5	80-100	75-100	70-100	55-95	25-38	5-16
Oaklet	7-73	Clay-------------	CH	A-7	0-10	80-100	75-100	70-100	65-95	60-90	35-65
37C*, 37E*:											
Oaklet----------	0-7	Silt loam--------	CL, CL-ML	A-4, A-6	0-5	80-100	75-100	70-100	55-95	25-38	5-16
	7-73	Clay-------------	CH	A-7	0-10	80-100	75-100	70-100	65-95	60-90	35-65
Carbo-----------	0-7	Silt loam--------	CL	A-6, A-7	0-2	95-100	90-100	85-95	75-85	30-50	10-25
	7-38	Clay-------------	CH	A-7	0-5	95-100	85-100	80-95	70-90	60-80	35-55
	38	Unweathered bedrock.	---	---	---	---	---	---	---	---	---

See footnote at end of table.

Table 17.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
38D*, 38E*, 38F*:											
Peaks	0-4	Extremely stony fine sandy loam.	SM, GM, ML, CL-ML	A-2, A-4	20-50	50-90	45-80	40-75	20-55	<30	NP-7
	4-31	Very channery sandy loam, channery fine sandy loam, channery loam.	SM, GM, GM-GC, SC-SM	A-2, A-4	5-40	45-75	30-65	20-55	10-40	<30	NP-7
	31-38	Extremely channery sandy loam, very channery fine sandy loam, extremely channery loam.	SM, GM, GM-GC, SC-SM	A-2, A-4	10-50	45-75	30-65	20-55	10-40	<30	NP-7
	38	Unweathered bedrock.	---	---	---	---	---	---	---	--	- -
Edneytown	0-12	Extremely stony loam.	SM, SC-SM	A-4, A-2-4	0-10	90-100	75-100	50-60	30-40	<25	NP-7
	12-39	Sandy clay loam, clay loam.	SC, CL, CL-ML, SC-SM	A-4, A-6	0-5	98-100	95-100	80-97	45-75	25-35	5-15
	39-49	Sandy loam, sandy clay loam.	SM, SC, ML, CL	A-2, A-4	0-5	98-100	95-100	65-85	30-55	<25	NP 9
	49-62	Loamy sand, sandy loam.	SM, SC-SM	A-2, A-4	0-5	98-100	95-100	50-70	15-40	<25	NP-7
39F*:											
Peaks	0-4	Extremely stony fine sandy loam.	SM, GM, ML, CL-ML	A-2, A-4	20-50	50-90	45-80	40-75	20-55	<30	NP-7
	4-31	Very channery sandy loam, channery fine sandy loam, channery loam.	SM, GM, GM-GC, SC-SM	A-2, A-4	5-40	45-75	30-65	20-55	10-40	<30	NP-7
	31-38	Extremely channery sandy loam, very channery fine sandy loam, extremely channery loam.	SM, GM, GM-GC, SC-SM	A-2, A-4	10-50	45-75	30-65	20-55	10-40	<30	NP-7
	38	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Rock outcrop	0-60	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
40*, Pits, quarry	0-60	Unweathered bedrock.	--	---	-		--	---	--	---	---
41A, Purdy	0-12	Silt loam	ML, CL	A-4, A-6, A-7	0	95-100	90-100	90-100	90-100	25-50	4-20
	12-62	Silty clay, clay, clay loam.	CL, CH, MH	A-6, A-7	0	95-100	90-100	85-100	75-85	30-65	11-30

See footnote at end of table.

Table 17.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
42F*:											
Rock outcrop----	0-60	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Drall----------	0-4	Channery sandy loam.	SW-SM, SM, SP-SM	A-1, A-2-4	13-35	70-85	50-85	30-60	10-30	<25	NP-5
	4-50	Very channery loamy sand, very channery loamy fine sand, loamy sand.	GW, GM, SW, SM	A-1	20-30	50-65	20-55	10-45	2-20	<25	NP-5
	50	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Dekalb----------	0-4	Channery sandy loam.	SM, GM, ML, CL-ML	A 2, A-4, A-1	0-30	50-90	45-80	40-75	20-55	10-32	NP-10
	4-38	Channery sandy loam, channery loam, very channery sandy loam.	SM, GM, ML, GM-GC	A-2, A-4, A-1	5-40	50-85	40-80	40-75	20-55	15-32	NP-9
	38	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
43B, 43C--------- Sherando	0-10	Cobbly fine sandy loam.	SM, SC SM	A-2, A-4, A 1	25-50	80-95	75-90	45-70	20-45	<25	NP-5
	10-15	Gravelly sandy loam, cobbly sandy loam.	GM, SM, SC-SM, GM-GC	A-2, A-1	5-50	50-80	40 75	25-50	12-30	<30	NP-9
	15-62	Very gravelly sandy loam, very cobbly sandy loam, gravelly sandy loam.	GM, SM, SP-SM, GP-GM	A-1, A-2	5-70	30-75	30-70	20-60	12-30	<25	NP-9
44A---------- Sindion	0-15	Loam----------	ML, CL-ML, CL	A-4	0 2	95-100	90-100	80-100	65-90	20-30	NP-8
	15-46	Loam, silt loam, silty clay loam.	ML, CL, CL-ML, SM	A-4, A-6	0-2	75-100	50-100	50 95	45-85	20-40	NP-15
	46-62	Loam, very cobbly sandy loam, clay loam.	ML, SM, CL, SC-SM	A-2, A-4, A-1-B	10-20	35-100	15-100	15-85	10-80	15-35	NP 10

See footnote at end of table.

Table 17.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
45D*, 45E*:											
Sylvatus--------	0-5	Channery silt loam.	CL-ML, CL, GM-GC, SC	A-2, A-4, A-6	3-15	55-90	50-75	40-70	30-65	25-40	4-15
	5-17	Very channery silt loam, very channery silty clay loam.	GM-GC, GC, SC, GP GC	A-2, A-4, A 6, A-7	3-20	15-65	10 50	10 45	8-40	25-50	4-25
	17-19	Very channery silt loam, extremely channery silty clay loam, extremely channery silt loam.	GM-GC, GW-GC, GP-GC	A-1, A-2	3-35	15-45	10-35	10-25	8-15	25-40	4-15
	19	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
Sylco----------	0-13	Channery silt loam.	GC, CL-ML, GM-GC	A-4	0-7	70-90	55-85	50-75	45-70	<30	4-10
	13-26	Very channery silt loam, flaggy loam, very channery silty clay loam.	CL-ML, CL, GC, GM-GC	A-4, A-1-B, A-2-4	6-20	55-85	30-80	25-75	20-70	20 30	5-10
	26-33	Very channery silt loam, very flaggy loam, very flaggy silty clay loam, extremely channery silt loam.	GC, GM-GC, SC, SC-SM	A-2, A-4, A-1-B	15-45	35-70	30-65	25-55	20-45	20-30	5-10
	33	Unweathered bedrock.	---	---	---	---	---	---	---	---	---
46B, 46C, 46D---- Thurmont	0-9	Fine sandy loam	SM, ML, CL, SC-SM	A-2, A-4	0-3	80-100	75-100	55-70	25-65	<30	NP-10
	9-72	Clay loam, loam, gravelly sandy clay loam.	SC, CL	A-2, A-6, A-7	0-5	80-100	70-90	65 80	30 60	30-45	12-20
47B---------- Timberville	0-8	Silt loam	ML, CL ML, SC-SM, SM	A-4	0-3	85-100	75-100	55-95	35-85	<25	NP-7
	8-24	Silt loam, silty clay loam, gravelly loam.	CL, CL-ML, GC, GM-GC	A-4, A-6	0-5	55-100	50-100	40-90	35-85	15-40	5-20
	24-68	Clay, silty clay loam, gravelly clay loam.	CL, CH, SC, GC	A-6, A-7	0-10	55-95	50 95	45 90	40-85	35-60	14-32
48A---------- Tygart	0-9	Silt loam--------	ML, CL	A-4, A-6	0	95-100	95-100	85-100	60-90	25-40	2 15
	9-17	Silty clay loam, silty clay, clay loam.	CL, CH, MH	A-6, A-7	0	95-100	95-100	85-100	65-95	30-65	11-30
	17 62	Silty clay loam, silty clay, clay.	CL, CH, MH	A-6, A-7	0	95-100	95-100	85-100	70-95	30-65	11-30

See footnote at end of table.

Table 17.--Engineering Index Properties Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
49B, 49C, 49D---- Unison	0-10	Fine sandy loam	CL, ML, CL-ML	A-4, A-6	0-25	75-100	75-100	60-95	50-90	20-38	2-15
	10-72	Clay loam, clay, gravelly silty clay.	CL, CH	A 6, A 7	0 25	75 100	65 100	60 100	55 95	35-65	15-35
50D*, 50E*:											
Weikert---------	0-3	Channery silt loam.	GM, ML, SM	A-1, A-2, A-4	0-10	35-70	35-70	25-65	20-55	30-40	4-10
	3-18	Channery loam, very channery silt loam, gravelly loam.	GM, GP-GM	A-1, A 2	0-20	15-60	10-55	5-45	5-35	28-36	3-9
	18	Weathered bedrock	---	---	---	---	---	---	---	---	---
Berks----------	0-2	Channery silt loam.	GM, ML, GC, SC	A-2, A-4	0-20	50-80	45-70	40-60	30-55	25-36	5-10
	2-12	Channery loam, very channery loam, channery silt loam.	GM, GC, SM, SC	A-1, A-2, A 4	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	12-30	Channery loam, very channery loam, channery silt loam.	GM, SM, GM-GC	A-1, A-2	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	30	Weathered bedrock	---	---	---	---	---	---	---	---	---
51F---------- Weikert	0-3	Channery silt loam.	GM, ML, SM	A-1, A-2, A-4	0-10	35-70	35-70	25-65	20-55	30-40	4-10
	3-18	Channery loam, very channery silt loam, gravelly loam.	GM, GP-GM	A-1, A-2	0-20	15-60	10-55	5-45	5 35	28 36	3 9
	18	Weathered bedrock	---	---	---	---	---	---	---	---	---
52B---------- Wheeling	0-7	Fine sandy loam	SM, SC-SM, SC	A-2, A-4	0	90-100	90-100	60-80	30-50	10-25	NP-10
	7-72	Silty clay loam, loam, gravelly sandy loam, fine sandy loam.	ML, CL, SM, SC	A-4, A-6	0-5	90-100	70-100	65-100	45-80	20-40	2-20

See footnote at end of table.

Table 17.--Engineering Index Properties--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	3-10 inches	4	10	40	200		
	In				Pct					Pct	
53D, 53E--------- Zepp	0-4	Very stony sandy loam.	SM, GM	A-2, A-4	5-21	60-75	50-70	30-60	15-40	<20	NP-10
	4 9	Channery loam, channery fine sandy loam, very stony sandy loam, channery sandy loam.	SM, SC-SM, GM	A-2, A-4	4-20	60-75	50-70	40-65	25-50	<25	NP-7
	9-44	Channery loam, very channery sandy loam, stony fine sandy loam.	SM, SC-SM, GM	A-2, A-4	0-15	60-75	55-70	40-70	25-55	<25	NP-10
	44-56	Channery clay loam, channery loam, very channery clay loam.	SM, SC-SM, GM	A-2, A-4	0	60-75	55-70	45-70	35-55	<35	3-15
	56 72	Extremely channery clay loam, channery loam, very channery clay loam.	SM, SC-SM, GM	A-2, A-4, A-1-B	0	45-75	25-70	20-70	15-50	<35	3-15
54E-------------- Zepp	0-4	Extremely stony sandy loam.	SM, GM	A-2, A-4	10-25	60-75	50-70	30-60	15-40	<20	NP-10
	4 9	Channery loam, channery fine sandy loam, extremely stony sandy loam, channery sandy loam.	SM, SC-SM, GM	A-2, A-4	15-45	60-70	50-70	40-65	25-50	<25	NP 7
	9-44	Channery loam, very channery sandy loam, stony fine sandy loam.	SM, SC-SM, GM	A-2, A-4	0-15	60-75	55-70	40-70	25-55	<25	NP-10
	44-56	Channery clay loam, channery loam, very channery clay loam.	SM, SC-SM, GM	A-2, A-4	0	60-75	55-70	45-70	35-55	<35	3-15
	56-72	Extremely channery clay loam, channery loam, very channery clay loam.	SM, SC SM, GM	A 2, A 4, A-1-B	0	45 75	25 70	20 70	15-50	<35	3-15
55A-------------- Zoar	0-10	Silt loam---------	ML, CL, CL-ML	A-4, A-6	0	95-100	95-100	90-100	75-95	20-40	3-15
	10-50	Silty clay, silty clay loam.	CL, CH, ML, MH	A-6, A-7	0	95-100	95-100	90-100	85-100	30-55	11-32
	50-67	Clay loam, silty clay loam, clay.	CL, CH, ML, MH	A-6, A-7	0	95-100	95-100	90-100	75-95	30-60	11-35

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 18.--Physical and Chemical Properties of the Soils

(The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated)

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in	pH				Pct
1C*:										
Berks	0-2	5-23	1.20-1.50	0.6-6.0	0.08-0.12	3.6-6.5	Low	0.17	3-2	2-4
	2-12	5-32	1.20-1.60	0.6-6.0	0.04-0.10	3.6-6.5	Low	0.17		
	12-30	5-20	1.20-1.60	2.0-6.0	0.04-0.10	3.6-6.5	Low	0.17		
	30	---	---	0.2-2.0	---	---				
Weikert	0-3	15-27	1.20-1.40	2.0-6.0	0.08-0.14	4.5-6.0	Low	0.28	2-1	1-4
	3-18	15-27	1.20-1.40	2.0-6.0	0.04-0.08	4.5-6.0	Low	0.28		
	18	---	---	0.6-20	---	---				
2A	0-7	6-18	1.20-1.65	2.0-6.0	0.10-0.15	5.1-7.8	Low	0.15	5	2-5
Biltmore	7-72	0-12	1.20-1.70	6.0-20	0.06-0.10	5.1-7.8	Low	0.10		
3B, 3C, 3D	0-7	10-25	1.20-1.50	0.6-6.0	0.14-0.19	3.6-5.5	Low	0.32	5	1-2
Braddock	7-43	35-55	1.20-1.50	0.6-2.0	0.12-0.17	3.6-5.5	Moderate	0.24		
	43-62	20-45	1.20-1.50	0.6-6.0	0.06-0.12	3.6-5.5	Low	0.24		
4B, 4C, 4D	0-7	10-25	1.00-1.20	0.6-6.0	0.10-0.19	3.6-5.5	Low	0.24	5	1-2
Braddock	7-43	35-55	1.20-1.50	0.6-2.0	0.14-0.19	3.6-5.5	Moderate	0.20		
	43-62	20-45	1.20-1.50	0.6-6.0	0.06-0.12	3.6-5.5	Low	0.20		
5C*:										
Braddock	0-7	10-25	1.20-1.50	0.6-6.0	0.14-0.19	3.6-5.5	Low	0.32	5	1-2
	7-43	35-55	1.20-1.50	0.6-2.0	0.12-0.17	3.6-5.5	Moderate	0.24		
	43-62	20-45	1.20-1.50	0.6-6.0	0.06-0.12	3.6-5.5	Low	0.24		
Urban land	0-6	---	---	---	---	---		---	---	---
6C*, 6E*:										
Carbo	0-7	20-40	1.20-1.40	0.6-2.0	0.16-0.19	4.5-7.3	Moderate	0.37	2-1	.5-3
	7-38	60-80	1.30-1.45	0.06-0.2	0.10-0.14	5.6-7.8	High	0.24		
	38	---	---	2.0-20	---	---				
Rock outcrop	0-60	---	---	---	---	---		---	---	---
7C, 7D	0-4	5-20	1.20-1.50	2.0-6.0	0.14-0.20	5.1-6.5	Low	0.32	2-1	.5-2
Catoctin	4-15	10-35	1.20-1.50	2.0-6.0	0.08-0.16	5.1-6.5	Low	0.17		
	15-36	10-25	1.20-1.50	2.0-6.0	0.04-0.15	5.6-7.3	Low	0.17		
	36	---	---	0.0-0.06	---	---				
8F*:										
Catoctin	0-4	5-20	1.20-1.50	2.0-6.0	0.08-0.14	5.1-6.5	Low	0.20	2	.5-2
	4-15	10-35	1.20-1.50	2.0-6.0	0.08-0.16	5.1-6.5	Low	0.17		
	15-36	10-25	1.20-1.50	2.0-6.0	0.04-0.15	5.6-7.3	Low	0.17		
	36	---	---	0.00-0.06	---	---				
Rock outcrop	0-60	---	---	---	---	---		---	---	---
9C, 9D	0-8	30-40	1.20-1.40	0.6-2.0	0.15-0.20	6.1-8.4	Moderate	0.37	2-1	.5-3
Chilhowie	8-20	60-80	1.30-1.45	0.06-0.2	0.10-0.15	6.1-8.4	High	0.24		
	20-36	55-80	1.20-1.50	0.06-0.2	0.02-0.05	6.6-8.4	High	0.24		
	36	---	---	2.0-20.0						

See footnote at end of table.

Table 18.--Physical and Chemical Properties of the Soils--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in	pH				Pct
10A	0-18	5-18	1.20-1.50	0.6-6.0	0.12-0.20	5.6-7.3	Low	0.24	5	1-5
Combs	18-44	5-18	1.20-1.50	0.6-6.0	0.12-0.20	5.6-7.3	Low	0.28		
	44 62	5-35	1.20-1.50	0.6-6.0	0.12-0.20	5.6-7.3	Low	0.28		
11B	0-9	7-27	1.20-1.40	0.6-6.0	0.12-0.20	3.6-5.5	Low	0.37	3	.5-4
Cotaco	9-52	18-35	1.20-1.50	0.6-2.0	0.07-0.15	3.6-5.5	Low	0.28		
	52-72	18-35	1.20-1.50	0.6-2.0	0.07-0.15	3.6-5.5	Low	0.28		
12A	0-7	5-15	1.20-1.40	2.0-20	0.07-0.15	4.5-5.5	Low	0.20	5	1-3
Craigsville	7 34	5-15	1.30-1.60	2.0-20	0.06-0.15	4.5-5.5	Low	0.17		
	34-62	5 10	1.35 1.55	>6.0	0.04 0.09	4.5 5.5	Low	0.17		
13C, 13D, 13E	0-4	10-20	1.20-1.50	6.0-20	0.08-0.12	3.6-4.4	Low	0.17	2	2-5
Dekalb	4-38	7-18	1.20-1.50	6.0-20	0.06-0.12	3.6-5.5	Low	0.17		
	38	---	---	2.0-6.0	---	---		---		
14E, 14F	0-4	10-20	1.20-1.50	6.0-20	0.08-0.12	3.6-4.4	Low	0.17	2	2-5
Dekalb	4-38	7-18	1.20-1.50	6.0-20	0.06-0.12	3.6-5.5	Low	0.17		
	38	---	---	2.0-6.0	---	---		---		
15F*:										
Dekalb	0-4	10-20	1.20-1.50	6.0-20	0.08-0.12	3.6-4.4	Low	0.17	2	2-5
	4-38	7-18	1.20-1.50	6.0-20	0.06-0.12	3.6-5.5	Low	0.17		
	38	---	---	2.0-6.0	---	---		---		
Edgemont	0-12	5-20	1.20-1.40	0.6-6.0	0.10-0.18	3.6-5.5	Low	0.15	5	2-4
	12-36	18-30	1.30-1.50	0.6-6.0	0.08-0.12	3.6-5.5	Low	0.15		
	36-52	5-30	1.40-1.60	0.6-6.0	0.06-0.10	3.6-5.5	Low	0.15		
Rock outcrop	0-60	---	---	---	---	---		---	---	---
16B, 16C	0-8	10-27	1.20-1.40	0.6-6.0	0.17-0.22	4.5-5.5	Low	0.37	4-3	.1-2
Dyke	8-44	35-70	1.25-1.55	0.6-2.0	0.14-0.19	4.5-5.5	Moderate	0.28		
	44-72	27-40	1.25-1.55	0.6-2.0	0.06-0.12	4.5-6.0	Moderate	0.28		
17C*, 17D*, 17E*:										
Edgemont	0-12	5-20	1.20 1.40	0.6 6.0	0.10 0.18	3.6 5.5	Low	0.15	5	2-4
	12-36	18-30	1.30-1.50	0.6-6.0	0.08-0.12	3.6-5.5	Low	0.15		
	36-52	5-30	1.40-1.60	0.6-6.0	0.06-0.10	3.6-5.5	Low	0.15		
Dekalb	0-4	10-20	1.20-1.50	6.0-20	0.08-0.12	3.6-4.4	Low	0.17	2	2-5
	4-38	7-18	1.20-1.50	6.0-20	0.06-0.12	3.6-5.5	Low	0.17		
	38	---	---	2.0-6.0	---	---		---		
18C, 18D, 18E	0-12	5-15	1.40-1.60	2.0-6.0	0.11-0.17	4.5-6.0	Low	0.20	5	1-3
Edneytown	12-39	20-35	1.30-1.40	0.6-2.0	0.12-0.18	4.5-5.5	Low	0.24		
	39-49	10-22	1.30-1.50	0.6-2.0	0.11-0.14	4.5-5.5	Low	0.24		
	49-62	4-15	1.30-1.50	2.0-6.0	0.06-0.12	4.5-5.5	Low	0.17		
19C, 19D	0 8	15-35	1.20-1.50	0.6-2.0	0.14-0.20	5.1-7.8	Low	0.28	4 3	2-4
Edom	8-38	35-60	1.30-1.60	0.2-2.0	0.10-0.14	5.1-7.8	Moderate	0.28		
	38-55	27-60	1.30-1.60	0.2-2.0	0.04-0.08	5.6-7.8	Moderate	0.17		
	55	---	---	0.2-2.0	---	---		---		
20B, 20C, 20D, 20E	0-7	10-30	1.25-1.55	0.6-6.0	0.15-0.21	4.5-6.0	Low	0.32	4-3	1-3
Fauquier	7 49	35 60	1.35 1.65	0.6 2.0	0.12 0.18	4.5 6.0	Moderate	0.28		
	49-66	---	---	0.00-0.06	---	---		---		

See footnote at end of table.

Table 18.--Physical and Chemical Properties of the Soils--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in	pH				Pct
21C, 21D---------	0-7	10-25	1.25-1.55	0.6-6.0	0.15-0.21	5.1-6.0	Low----------	0.28	4	1-3
Fauquier	7-49	35-60	1.35-1.65	0.6-2.0	0.12-0.18	4.5-6.0	Moderate-----	0.28		
	49-66	---	---	0.00-0.06	---	---	----------	---		
22C----------	0-8	15-27	1.20-1.40	0.6-2.0	0.12-0.18	3.6-5.5	Low----------	0.32	3-2	.5-4
Gilpin	8-24	18-35	1.20-1.50	0.6-2.0	0.12-0.16	3.6-5.5	Low----------	0.24		
	24 36	15 35	1.20 1.50	0.6 2.0	0.08-0.12	3.6-5.5	Low----------	0.24		
	36	---	---	0.2-2.0	---	---	----------	---		
23D, 23E---------	0-8	15-27	1.20-1.40	0.6-2.0	0.08-0.14	3.6-5.5	Low----------	0.24	3	---
Gilpin	8-24	18-35	1.20-1.50	0.6-2.0	0.12-0.16	3.6-5.5	Low----------	0.24		
	24-36	15-35	1.20-1.50	0.6-2.0	0.08-0.12	3.6-5.5	Low----------	0.24		
	36	---	---	0.2-2.0	---	---	----------	---		
24A ----------	0 16	18 30	1.10 1.30	0.6 2.0	0.18 0.24	5.6-7.8	Low----------	0.28	5	3-6
Huntington	16-48	18-30	1.30-1.50	0.6-2.0	0.16-0.22	5.6 7.8	Low	0.32		
	48-70	15-30	1.30-1.50	0.6-2.0	0.10-0.16	5.6-7.8	Low----------	0.28		
25C, 25D, 25E----	0-12	10-20	1.30-1.50	2.0-6.0	0.10-0.18	4.5-5.5	Low----------	0.24	5	.5-5
Jefferson	12-44	18-34	1.30-1.65	2.0-6.0	0.10-0.16	4.5-5.5	Low----------	0.28		
	44-65	15-30	1.30-1.65	2.0-6.0	0.08-0.14	4.5-5.5	Low----------	0.17		
26E----------	0-12	10-25	1.30-1.50	2.0-6.0	0.10-0.16	4.5-5.5	Low----------	0.10	5	.5-5
Jefferson	12-44	18-34	1.30-1.65	2.0-6.0	0.10-0.16	4.5-5.5	Low----------	0.28		
	44 65	15 30	1.30 1.65	2.0 6.0	0.08 0.14	4.5-5.5	Low----------	0.17		
27C----------	0-5	10-27	1.20-1.40	0.6 2.0	0.12 0.18	3.6 5.5	Low----------	0.28	4	1-4
Laidig	5-41	18-35	1.30-1.50	0.6-6.0	0.08-0.12	3.6-5.5	Low----------	0.24		
	41-62	18-35	1.40-1.70	0.06-0.6	0.06-0.10	3.6-5.5	Low----------	0.17		
28C, 28D, 28E----	0-5	7-27	1.20-1.40	0.6-6.0	0.08-0.12	3.6-5.5	Low----------	0.28	4	2-4
Laidig	5-41	18-35	1.30-1.50	0.6-6.0	0.08-0.10	3.6-5.5	Low----------	0.28		
	41-62	18-35	1.40-1.70	0.06-0.6	0.06-0.10	3.6-5.5	Low----------	0.17		
29B, 29C, 29D,										
29E----------	0-6	12-25	1.20-1.50	0.6-6.0	0.14-0.18	4.5-5.5	Low-------	0.37	5	.5-2
Lodi	6-13	10-50	1.30-1.60	0.6-2.0	0.12-0.15	4.5-5.5	Moderate-----	0.28		
	13-57	35-60	1.35-1.65	0.6-2.0	0.10-0.18	4.5-5.5	Moderate-----	0.28		
	57-84	10-50	1.35-1.65	0.6-2.0	0.10-0.18	4.5-5.5	Moderate-----	0.28		
30C----------	0-2	5-10	1.20-1.40	2.0-6.0	0.12-0.17	3.6-5.5	Low----------	0.24	2	.5-2
Massanutten	2-30	12-18	1.25-1.45	2.0-6.0	0.10-0.20	3.6-5.5	Low----------	0.17		
	30	---	---	0.0-0.2	---	---	----------	---		
31C, 31D, 31E----	0-2	5-10	1.20-1.40	2.0-6.0	0.08-0.12	3.6-5.5	Low----------	0.24	2	.5-2
Massanutten	2-30	12-18	1.25-1.45	2.0-6.0	0.10-0.14	3.6-5.5	Low----------	0.17		
	30	---	---	0.0-0.2	---	---	----------	---		
32A----------	0-6	18-27	1.25-1.35	0.6-2.0	0.12-0.20	5.6-7.3	Low----------	0.43	5	2-4
Maurertown	6-62	35-60	1.30-1.50	<0.06	0.12-0.16	5.6-7.3	High---------	0.32		
33B, 33C---------	0-13	10-27	1.20-1.40	0.6-2.0	0.18-0.24	4.5-5.5	Low----------	0.43	4 3	2-4
Monongahela	13-24	18-35	1.30-1.50	0.6-2.0	0.14-0.18	4.5-5.5	Low----------	0.43		
	24-52	18-35	1.30-1.60	0.06-0.6	0.08-0.12	4.5-5.5	Low----------	0.43		
	52-62	10-35	1.20-1.40	0.2-0.6	0.08-0.12	4.5-5.5	Low----------	0.37		

See footnote at end of table.

Table 18.--Physical and Chemical Properties of the Soils--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in	pH				Pct
34C*, 34D*:										
Myersville	0-5	5-20	1.20-1.50	2.0-6.0	0.11-0.16	4.5-6.0	Low	0.28	4	.5-2
	5-29	18-35	1.20-1.50	0.6-2.0	0.14-0.18	4.5-6.0	Low	0.32		
	29-48	10-32	1.20-1.50	0.6-2.0	0.08-0.16	4.5-6.0	Low	0.32		
	48-66	---	---	0.00-0.06	---	---	---	---		
	70	---	---	0.00-0.06	---	---	---	---		
Catoctin	0-4	5-20	1.20-1.50	2.0-6.0	0.14-0.20	5.1-6.5	Low	0.32	2	.5-2
	4-15	10-35	1.20-1.50	2.0-6.0	0.08-0.16	5.1-6.5	Low	0.17		
	15-36	10-25	1.20-1.50	2.0-6.0	0.04-0.15	5.6-7.3	Low	0.17		
	36	---	---	0.00-0.06	---	---	---	---		
34E*:										
Myersville	0-5	5-20	1.20-1.50	2.0-6.0	0.11-0.16	4.5-6.0	Low	0.28	4	.5-2
	5-29	18-35	1.20-1.50	0.6-2.0	0.14-0.18	4.5-6.0	Low	0.32		
	29-48	10-32	1.20-1.50	0.6-2.0	0.08-0.16	4.5-6.0	Low	0.32		
	48-66	---	---	0.00-0.06	---	---	---	---		
	70	---	---	0.00-0.06	---	---	---	---		
Catoctin	0-4	5-20	1.20-1.50	2.0-6.0	0.11-0.16	4.5-6.0	Low	0.28	4	.5-2
	4-15	18-35	1.20-1.50	0.6-2.0	0.14-0.18	4.5-6.0	Low	0.32		
	15-36	10-32	1.20-1.50	0.6-2.0	0.08-0.16	4.5-6.0	Low	0.32		
	36	---	---	0.00-0.06	---	---	---	---		
35D*:										
Myersville	0-5	5-20	1.20-1.50	2.0-6.0	0.11-0.16	4.5-6.0	Low	0.28	4	.5-2
	5-29	18-35	1.20-1.50	0.6-2.0	0.14-0.18	4.5-6.0	Low	0.32		
	29-48	10-32	1.20-1.50	0.6-2.0	0.08-0.16	4.5-6.0	Low	0.32		
	48-66	---	---	---	---	---	---	---		
	70	---	---	---	---	---	---	---		
Catoctin	0-4	5-20	1.20-1.50	2.0-6.0	0.08-0.14	5.1-6.5	Low	0.20	2	.5-2
	4-15	10-35	1.20-1.50	2.0-6.0	0.08-0.16	5.1-6.5	Low	0.17		
	15-36	10-25	1.20-1.50	2.0-6.0	0.04-0.15	5.6-7.3	Low	0.17		
	36-38	---	---	0.00-0.06	---	---	---	---		
35E*:										
Myersville	0-5	5-20	1.20-1.50	2.0-6.0	0.11-0.16	4.5-6.0	Low	0.28	4	.5-2
	5-29	18-35	1.20-1.50	0.6-2.0	0.14-0.18	4.5-6.0	Low	0.32		
	29-48	10-32	1.20-1.50	0.6-2.0	0.08-0.16	4.5-6.0	Low	0.32		
	48-66	---	---	---	---	---	---	---		
	70	---	---	---	---	---	---	---		
Catoctin	0-4	5-20	1.20-1.50	2.0-6.0	0.08-0.14	5.1-6.5	Low	0.20	2	.5-2
	4-15	10-35	1.20-1.50	2.0-6.0	0.08-0.16	5.1-6.5	Low	0.17		
	15-36	10-25	1.20-1.50	2.0-6.0	0.04-0.15	5.6-7.3	Low	0.17		
	36	---	---	0.00-0.06	---	---	---	---		
36B, 36C	0-7	20-40	1.20-1.40	0.6-2.0	0.10-0.19	4.5-6.5	Low	0.37	3	1-2
Oaklet	7-73	60-80	1.30-1.45	0.06-0.2	0.08-0.16	4.5-6.5	High	0.28		
37C*, 37E*:										
Oaklet	0-7	20-40	1.20-1.40	0.6-2.0	0.10-0.19	4.5-6.5	Low	0.37	3	1-2
	7-73	60-80	1.30-1.45	0.06-0.2	0.08-0.16	4.5-6.5	High	0.28		
Carbo	0-7	20-40	1.20-1.40	0.6-2.0	0.16-0.19	4.5-7.3	Moderate	0.37	2-1	.5 3
	7-38	60 80	1.30 1.45	0.06-0.2	0.10-0.14	5.6-7.8	High	0.24		
	38	---	---	2.0-20	---	---	---	---		

See footnote at end of table.

Table 18.--Physical and Chemical Properties of the Soils--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH				Pct
38D*, 38E*, 38F*:										
Peaks	0-4	4-16	1.20-1.40	6.0-20	0.08-0.12	4.5-6.0	Low	0.15	2	---
	4-31	5-18	1.20-1.40	6.0-20	0.06-0.10	4.5-6.0	Low	0.10		
	31-38	5-18	1.20-1.40	6.0-20	0.06-0.10	4.5-6.0	Low	0.05		
	38	---	---	---	---	---	---	---		
Edneytown	0-12	5-15	1.40-1.60	2.0-6.0	0.08-0.14	4.5-6.0	Low	0.10	5	1-3
	12-39	20-35	1.30-1.40	0.6-2.0	0.12-0.18	4.5-5.5	Low	0.24		
	39-49	10-20	1.30-1.50	0.6-2.0	0.11-0.14	4.5-5.5	Low	0.24		
	49-62	4-15	1.30-1.50	2.0-6.0	0.06-0.12	4.5-5.5	Low	0.17		
39F*:										
Peaks	0-4	4-16	1.20-1.40	6.0-20	0.08-0.12	4.5-6.0	Low	0.15	2	---
	4 31	5-18	1.20-1.40	6.0-20	0.06-0.10	4.5-6.0	Low	0.10		
	31-38	5-18	1.20-1.40	6.0-20	0.06 0.10	4.5-6.0	Low	0.05		
	38	---	---	---	---	---	---	---		
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---
40*	0-60	---	---	---	---	---	---	---	---	---
Pits, quarry										
41A	0-12	18-35	1.30-1.50	0.2-0.6	0.18-0.24	3.6-5.5	Moderate	0.43	5	2-4
Purdy	12 62	35 50	1.30-1.60	<0.2	0.12-0.18	3.6-5.5	Moderate	0.32		
42F*:										
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---
Drall	0-4	2-10	1.40-1.50	6.0-20	0.04-0.13	4.5-5.0	Low	0.17	3	<.5
	4-50	2-8	1.45-1.55	6.0-20	0.02-0.06	4.5-6.0	Low	0.17		
	50	---	---	---	---	---	---	---		
Dekalb	0-4	10-20	1.20-1.50	6.0-20	0.08-0.12	3.6-6.5	Low	0.17	2	2-4
	4-38	7-18	1.20-1.50	6.0-20	0.06-0.12	3.6-5.5	Low	0.17		
	38	---	---	2.0-6.0	---	---	---	---		
43B, 43C	0-10	5-15	1.35-1.65	2.0-6.0	0.08 0.12	3.6-6.0	Low	0.20	5	.5-2
Sherando	10-15	10-20	1.40-1.65	2.0-20	0.05-0.08	4.5-5.5	Low	0.15		
	15-62	5-10	1.40-1.70	>6.0	0.04-0.06	4.5-5.5	Low	0.10		
44A	0-15	15-27	1.35-1.60	0.6-2.0	0.16-0.22	6.1-8.4	Low	0.32	4	1-3
Sindion	15-46	18-35	1.45-1.70	0.6-2.0	0.08-0.18	6.1-8.4	Low	0.32		
	46 62	15-35	1.50-1.70	0.6-6.0	0.06-0.14	6.1-8.4	Low	0.28		
45D*, 45E*:										
Sylvatus	0-5	10-27	1.20-1.40	0.6-2.0	0.12-0.18	3.6 5.0	Low	0.28	1	.5-2
	5-17	10-35	1.20-1.60	0.6-2.0	0.10-0.14	3.6-5.0	Low	0.10		
	17-19	10-30	1.20-1.40	0.6-2.0	0.04-0.10	3.6-5.0	Low	0.10		
	19	---	---	0.0-0.01	---	---	---	---		
Sylco	0-13	15-25	1.00-1.20	0.6-2.0	0.11-0.16	3.6-5.5	Low	0.24	2	1-5
	13-26	15 35	1.30 1.50	0.6-2.0	0.10-0.15	3.6-5.5	Low	0.20		
	26-33	15-35	1.20-1.50	0.6 2.0	0.05-0.10	3.6-5.5	Low	0.15		
	33	---	---	0.00-0.01	---	---	---	---		
46B, 46C, 46D	0-9	10-25	1.20-1.40	2.0-6.0	0.10-0.15	4.5-5.5	Low	0.32	5	.5-2
Thurmont	9-72	18-35	1.30-1.50	0.6-2.0	0.13-0.19	4.5-5.5	Low	0.20		

See footnote at end of table.

Table 18.--Physical and Chemical Properties of the Soils--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cc	In/hr	In/in	pH				Pct
47B----------	0-8	6-25	1.30-1.50	2.0-6.0	0.11-0.20	3.6-6.5	Low----------	0.32	5	1-3
Timberville	8-24	13-35	1.30-1.50	0.6-2.0	0.11-0.19	3.6-6.5	Low----------	0.24		
	24-68	35-60	1.40-1.55	0.6-2.0	0.10-0.18	3.6-6.5	Moderate-----	0.24		
48A----------	0-9	15-27	1.20-1.40	0.6-2.0	0.18-0.22	4.5-6.0	Low----------	0.43	5	2-4
Tygart	9-17	35-50	1.20-1.50	0.06-0.2	0.10-0.14	3.6-5.5	Moderate-----	0.32		
	17-62	35-50	1.30-1.60	0.06-0.2	0.10-0.14	3.6-5.5	Moderate-	0.32		
49B, 49C, 49D --	0 10	10 25	1.35 1.65	0.6-6.0	0.14-0.20	4.5-6.0	Low----------	0.32	5	1-3
Unison	10-72	30-70	1.30-1.60	0.6-2.0	0.12-0.18	4.5-6.0	Moderate-----	0.24		
50D*, 50E*:										
Weikert---------	0-3	15-27	1.20-1.40	2.0-6.0	0.08-0.14	4.5-6.0	Low----------	0.28	2-1	1-4
	3-18	15-27	1.20-1.40	2.0-6.0	0.04-0.08	4.5-6.0	Low----------	0.28		
	18	---	---	0.6-20	---	---	----------	----		
Berks----------	0-2	5-23	1.20-1.50	0.6-6.0	0.08 0.12	3.6 6.5	Low----------	0.17	3-2	2-4
	2-12	5-32	1.20-1.60	0.6-6.0	0.04-0.10	3.6-6.5	Low----------	0.17		
	12-30	5-20	1.20-1.60	2.0-6.0	0.04-0.10	3.6-6.5	Low----------	0.17		
	30	---	---	0.2-2.0	---	---	----------	----		
51F----------	0-3	15-27	1.20-1.40	2.0-6.0	0.08-0.14	4.5-6.0	Low----------	0.28	2-1	1-4
Weikert	3-18	15-27	1.20-1.40	2.0-6.0	0.04-0.08	4.5-6.0	Low----------	0.28		
	18	---	---	0.6-20	---	---	----------	----		
52B----------	0-7	10-20	1.55-1.75	0.6-6.0	0.12 0.16	5.1 6.5	Low----------	0.28	5-4	1-3
Wheeling	7 72	18 30	1.30 1.50	0.6-2.0	0.08-0.16	5.1-6.0	Low----------	0.32		
53D, 53E, 54E----	0-4	5-20	1.20-1.40	2.0-6.0	0.08-0.12	3.6-5.5	Low----------	0.10	5	.5-2
Zepp	4-9	5-15	1.25-1.45	2.0-6.0	0.08-0.12	3.6-5.5	Low----------	0.24		
	9-44	10-18	1.25-1.45	2.0-6.0	0.10-0.14	3.6-5.5	Low----------	0.17		
	44-56	20-40	1.25-1.45	2.0-6.0	0.12-0.16	3.6-5.5	Low----------	0.17		
	56-72	20-40	1.25-1.45	2.0-6.0	0.12-0.16	3.6-5.5	Low----------	0.17		
55A----------	0-10	15-30	1.20-1.40	0.6-2.0	0.15-0.18	4.5-5.5	Low ----------	0.43	3	1-4
Zoar	10 50	35 50	1.30 1.60	0.06-0.6	0.12-0.15	4.5-5.5	Moderate-----	0.32		
	50-67	35-50	1.40-1.70	0.06-0.2	0.08-0.12	4.5-5.5	Moderate-----	0.32		

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 19. Soil and Water Features

("Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained i
< means less than; > means more than. Absence of an entry indicates that the feature is not a concer
estimated)

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Total subsidence	Potent frost actio
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		
					Ft			In		In	
1C*:											
Berks	C	None	---	---	>6.0	---	---	20-40	Soft	---	Low---
Weikert	B/D	None	---	---	>6.0	---	---	10-20	Soft	---	Moder
2A Biltmore	A	Occasional	Brief	Jan-Dec	3.5-6.0	Apparent	Dec-May	>60	---		Low
3B, 3C, 3D Braddock	B	None	---	---	>6.0	---	---	>60	---		Moder
4B, 4C, 4D Braddock	B	None	---	---	>6.0	---		>60	---	---	Moder
5C*:											
Braddock	B	None	---	---	>6.0	---	---	>60	---	---	Moder
Urban land	-	None	---	---	>2.0	---	---	>10	---	---	---
6C*, 6E*:											
Carbo	C	None	---	---	>6.0	---	---	20-40	Hard	---	Moder
Rock outcrop	D	None	---	---	>6.0	---	---	0	Hard	---	---
7C, 7D Catoctin	C	None	---	---	>6.0	---	---	20-40	Hard	---	Low---
8F*:											
Catoctin	C	None	---	---	>6.0	---	---	20 40	Hard	---	Low---
Rock outcrop	D	None	---	---	>6.0	---	---	0	Hard	---	---
9C, 9D Chilhowie	C	None	---	---	>6.0	---	---	20-40	Hard	---	Moder
10A Combs	B	Occasional	Brief	Dec-May	>6.0	---	---	>60	---	---	---
11B Cotaco	C	None	---	---	1.5-2.5	Apparent	Nov-May	>60	---	---	---

See footnote at end of table.

Table 19.--Soil and Water Features· Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Total subsidence	Potential frost action
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		
					Ft			In		In	
12A---------- Craigsville	B	Frequent----	Very brief	Nov-May	>6.0	---	---	>60	---	---	Moderate
13C, 13D, 13E, 14E, 14F------- Dekalb	A	None--------	---	---	>6.0	---	---	20-40	Hard	---	Low--
15F*: Dekalb --------	A	None--------	---	---	>6.0	---	---	20-40	Hard	---	Low--
Edgemont-------	B	None--------	---	---	>6.0	---	---	40-84	Hard	---	Moder
Rock outcrop---	D	None--------	---	---	>6.0	---	---	0	Hard	---	
16B, 16C-------- Dyke	B	None--------	---	---	>6.0	---	---	>60	---	---	Moder
17C*, 17D*, 17E*: Edgemont------	B	None ----	---	---	>6.0	---	---	40-84	Hard	---	Moder
Dekalb--------	A	None--------	---	---	>6.0	---	---	20-40	Hard	---	Low
18C, 18D, 18E--- Edneytown	B	None--------	---	---	>6.0	---	---	>60	---	---	Moder
19C, 19D-------- Edom	C	None--------	---	---	>6.0	---	---	40-60	Soft	---	Moder
20B, 20C, 20D, 20E, 21C, 21D-- Fauquier	C	None ----	---	---	>6.0	---	---	>40	Soft	---	Moder
22C, 23D, 23E--- Gilpin	C	None--------	---	---	>6.0	---	---	20-40	Soft	---	Moder
24A---------- Huntington	B	Occasional	Brief-----	Dec-May	>6.0	---	---	>60	---	---	High-
25C, 25D, 25E Jefferson	B	None--------	---	---	>6.0	---	---	>60	---	---	--
26E---------- Jefferson	B	None--------	---	---	>6.0	---	---	>60	---	---	Moder

See footnote at end of table.

Table 19.--Soil and Water Features--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Total subsidence	Poten fro acti
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		
					Ft			In		In	
27C, 28C, 28D, 28E---------- Laidig	C	None--------	---	---	2.5-4.0	Perched	Jan-Mar	>60	---	---	Moder
29B, 29C, 29D, 29E---------- Lodi	B	None			>6.0	---	---	>60	---	---	Moder
30C, 31C, 31D, 31E---------- Massanutten	B	None--------	---	---	>6.0	---	---	20-40	Hard	---	Moder
32A---------- Maurertown	D	None--------	---	---	0-0.5	Apparent	Nov-Jun	>60	---	---	High-
33B, 33C-------- Monongahela	C	None--------	---	---	1.5-3.0	Perched	Dec-Apr	>60	---	---	Moder
34C*, 34D*: Myersville-----	B	None--------	---	---	>6.0	---	---	40-60	Soft	---	Moder
Catoctin-------	C	None--------	---	---	>6.0	---	---	20-40	Hard	---	Low--
34E*: Myersville-----	B	None--------	---	---	>6.0	---	---	40-60	Soft	---	Moder
Catoctin-------	B	None--------	---	---	>6.0	---	---	40-60	Soft	---	Moder
35D*, 35E*: Myersville-----	B	None--------	---	---	>6.0	---	---	40-60	Soft	---	Moder
Catoctin-------	C	None--------	---	---	>6.0	---	---	20-40	Hard	---	Low--
36B, 36C-------- Oaklet	C	None--------	---	---	>6.0	---	---	>60	---	---	Moder
37C*, 37E*: Oaklet----------	C	None--------	---	---	>6.0	---	---	>60	---	---	Moder
Carbo----------	C	None--------	---	---	>6.0	---	---	20-40	Hard	---	Moder

See footnote at end of table.

Table 19.--Soil and Water Features--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Total subsidence	Pote fr act
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		
					Ft			In		In	
38D*, 38E*, 38F*:											
Peaks	C	None	---	---	>6.0	---	---	20-40	---	---	Low-
Edneytown	B	None	---	---	>6.0	---	---	>60	---	---	Mode
39F*:											
Peaks	C	None	---	---	>6.0	---	---	20-40	---	---	Low-
Rock outcrop	D	None	---	---	>6.0	---	---	0	Hard	---	-
40* Pits, quarry	-	None	---	---	>6.0	---	---	0	Hard	---	-
41A Purdy	D	None	---	---	+1-1.0	Apparent	Nov-Jun	>60	---	---	High
42F*:											
Rock outcrop	D	None	---	---	>6.0	---	---	0	Hard	---	-
Drall	B	None	---	---	>6.0	---	---	40-60	Hard	---	Low-
Dekalb	C	None	---	---	>6.0	---	---	20 40	Hard	---	Low-
43B, 43C Sherando	B	None	---	---	>6.0	---	---	>60	---	---	Low-
44A Sindion	B	Occasional	Very brief to brief.	Dec Mar	1.5-3.0	Apparent	Dec-Apr	>60	---	---	High
45D*, 45E*:											
Sylvatus	D	None	---	---	>6.0	---	---	10-20	Hard	---	Mode
Sylco	C	None	---	---	>6.0	---	---	20-40	Hard	---	Mode
46B, 46C, 46D Thurmont	B	None	---	---	4.0-6.0	Apparent	Dec-Mar	>60	---	---	Mode
47B Timberville	B	Rare	---	---	>6.0	---	---	>60	---	---	Mode
48A Tygart	D	None	---	---	0.5-1.5	Apparent	Dec-May	>60	---	---	Mode
49B, 49C, 49D Unison	B	None	---	---	>6.0	---	---	>60	---	---	Mode

See footnote at end of table.

Table 19.--Soil and Water Features--Continued

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock		Total subsidence	Pote fr act
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness		
					Ft			In		In	
50D*, 50E*:											
Weikert	B/D	None	---	---	>6.0	---	---	10 20	Soft	---	Mode
Berks	C	None	---	---	>6.0	---	---	20-40	Soft	---	Low-
51F Weikert	B/D	None	---	---	>6.0	---	---	10-20	Soft	---	Mode
52B Wheeling	B	None	---	---	>6.0	---	---	>60	---	---	Mode
53D, 53E, 54E Zepp	B	None	---	---	>6.0	---	---	>60	---	---	Mode
55A Zoar	C	None	---	---	1.5 2.5	Perched	Dec Apr	>60	---	---	Mode

* See description of the map unit for composition and behavior characteristics of the map unit.

Table 20.--Classification of the Soils

Soil name	Family or higher taxonomic class
Berks	Loamy-skeletal, mixed, mesic Typic Dystrochrepts
Biltmore	Mixed, mesic Typic Udipsamments
Braddock	Clayey, mixed, mesic Typic Hapludults
Carbo	Very fine, mixed, mesic Typic Hapludalfs
Catoctin	Loamy-skeletal, mixed, mesic Ruptic-Alfic Eutrochrepts
Chilhowie	Very fine, mixed, mesic Typic Hapludalfs
Combs	Coarse-loamy, mixed, mesic Fluventic Hapludolls
Cotaco	Fine-loamy, mixed, mesic Aquic Hapludults
Craigsville	Loamy-skeletal, mixed, mesic Fluventic Dystrochrepts
Dekalb	Loamy-skeletal, mixed, mesic Typic Dystrochrepts
Drall	Sandy-skeletal, siliceous, mesic Typic Udorthents
Dyke	Clayey, mixed, mesic Typic Rhodudults
Edgemont	Fine-loamy, mixed, mesic Typic Hapludults
Edneytown	Fine-loamy, mixed, mesic Typic Hapludults
Edom	Fine, illitic, mesic Typic Hapludalfs
Fauquier	Fine, mixed, mesic Ultic Hapludalfs
Gilpin	Fine-loamy, mixed, mesic Typic Hapludults
Huntington	Fine-silty, mixed, mesic Fluventic Hapludolls
Jefferson	Fine-loamy, siliceous, mesic Typic Hapludults
Laidig	Fine-loamy, siliceous, mesic Typic Fragiudults
Lodi	Clayey, mixed, mesic Typic Hapludults
Massanutten	Coarse-loamy, siliceous, mesic Typic Hapludults
Maurertown	Fine, mixed, mesic Typic Ochraqualfs
Monongahela	Fine-loamy, mixed, mesic Typic Fragiudults
Myersville	Fine-loamy, mixed, mesic Ultic Hapludalfs
Oaklet	Very fine, mixed, mesic Typic Paleudalfs
Peaks	Loamy-skeletal, mixed, mesic Typic Dystrochrepts
Purdy	Clayey, mixed, mesic Typic Ochraquults
Sherando	Loamy-skeletal, siliceous, mesic Typic Dystrochrepts
Sindion	Fine-loamy, mixed, mesic Fluvaquentic Hapludolls
Sylco	Loamy-skeletal, mixed, mesic Typic Dystrochrepts
Sylvatus	Loamy-skeletal, mixed, mesic Lithic Dystrochrepts
Thurmont	Fine-loamy, mixed, mesic Typic Hapludults
Timberville	Clayey, mixed, mesic Typic Hapludults
Tygart	Clayey, mixed, mesic Aeric Ochraquults
Unison	Clayey, mixed, mesic Typic Hapludults
Weikert	Loamy-skeletal, mixed, mesic Lithic Dystrochrepts
Wheeling	Fine-loamy, mixed, mesic Ultic Hapludalfs
Zepp	Coarse-loamy, siliceous, mesic Typic Hapludults
Zoar	Clayey, mixed, mesic Aquic Hapludults

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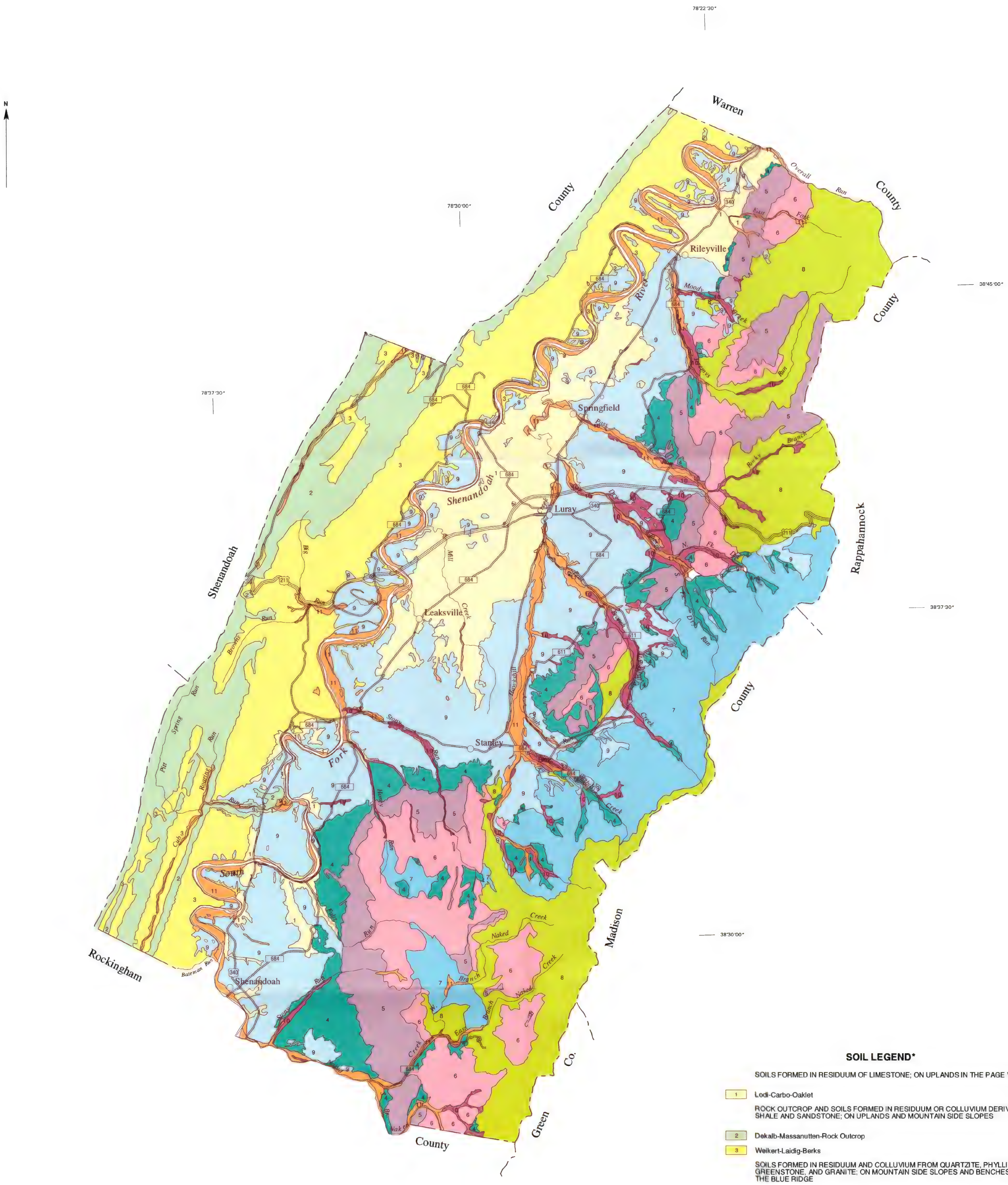


UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

GENERAL SOILS MAP
PAGE COUNTY, VIRGINIA

Scale 1:100000

4 0 4
MILES

8 0 8
KILOMETERS

SOIL LEGEND*

SOILS FORMED IN RESIDUUM OF LIMESTONE; ON UPLANDS IN THE PAGE VALLEY

1 Lodi-Carbo-Oaklet

ROCK OUTCROP AND SOILS FORMED IN RESIDUUM OR COLLUVIUM DERIVED FROM SHALE AND SANDSTONE; ON UPLANDS AND MOUNTAIN SIDE SLOPES

2 Dekalb-Massanutten-Rock Outcrop

3 Weikert-Laidig-Berks

SOILS FORMED IN RESIDUUM AND COLLUVIUM FROM QUARTZITE, PHYLLITE, GREENSTONE, AND GRANITE; ON MOUNTAIN SIDE SLOPES AND BENCHES IN THE BLUE RIDGE

4 Thurmont

5 Edgemont-Dekalb

6 Sylvatus-Sylco

7 Edneytown-Peaks

8 Catoctin-Myersville-Fauquier

SOILS FORMED IN ALLUVIUM AND COLLUVIUM; ON STREAM TERRACES, FLOOD PLAINS, AND MOUNTAIN SIDE SLOPES AND BENCHES

9 Braddock-Monongahela-Unison

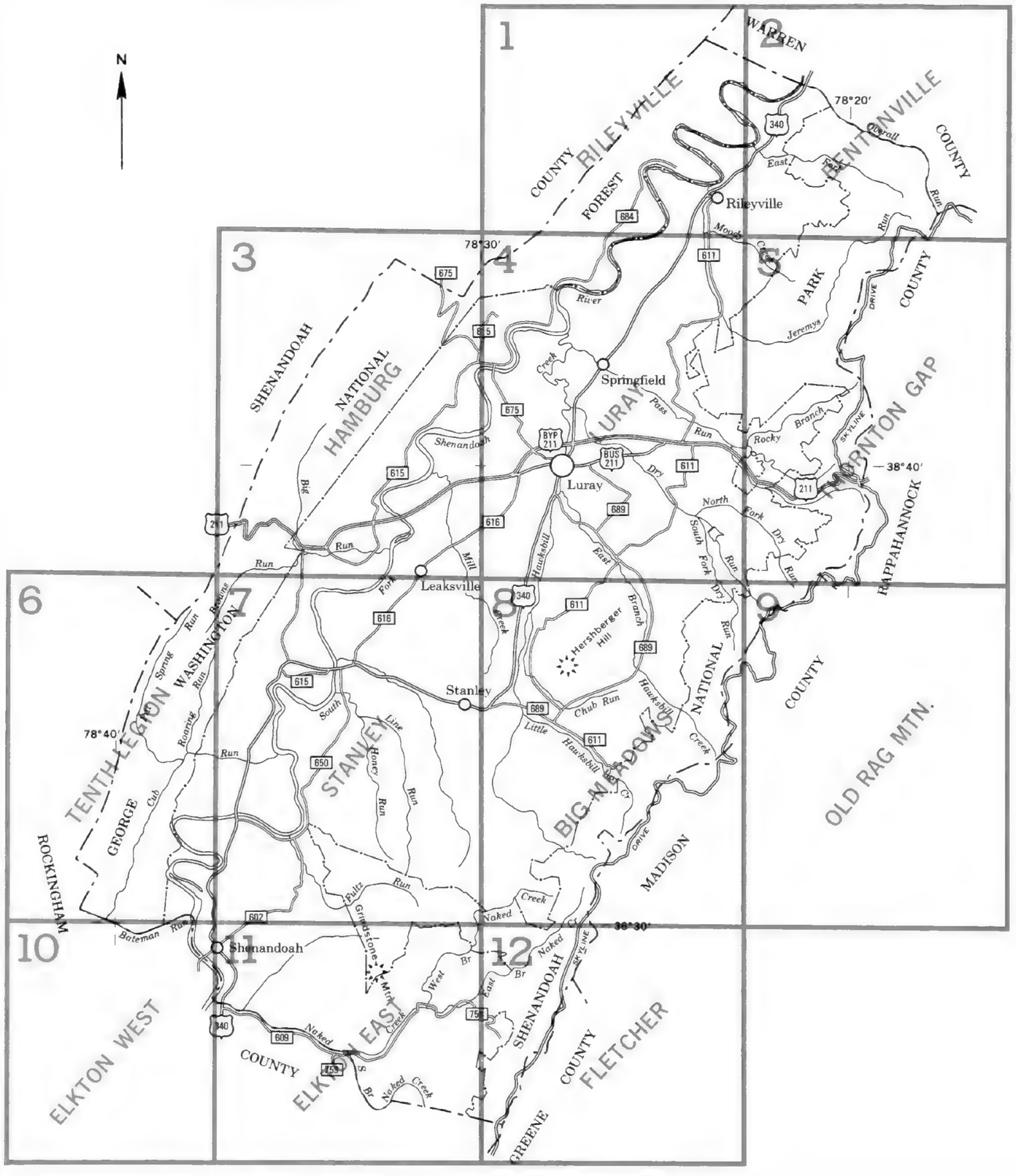
10 Sherando

11 Craigsville-Huntington

*The units on this legend are described in the text under the heading "General Soil Map Units."

Compiled 1994

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.



INDEX TO MAP SHEETS
PAGE COUNTY, VIRGINIA

Scale 1:190,080

1 0 1 2 3 Mi

1 0 3 6 Km

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

PAGE COUNTY, VIRGINIA
RILEYVILLE QUADRANGLE
SHEET NUMBER 1 OF 12

78°30'00" 78°27'30" 78°25'00" 78°22'30"
38°52'30" 38°50'00" 38°47'30" 38°45'00"
718 000mE 719 720 721 722 723 724 725 726 727 728 000mE
4305 000mN 4305 4304 4303 4302 4301 4300 4299 4298 4297 4296 4295 4294 4293 000mN

WARREN COUNTY
SHENANDOAH MOUNTAIN
MASSANUTTEN
SHENANDOAH COUNTY
PAGE COUNTY
Habron Gap
Jacks Notch
Indian Grave Ridge
SHENANDOAH RIVER
SOUTH FORK SHENANDOAH RIVER
SOUTH FORK
Goods Mills
Fosters Landing
Burners Bottom
Rileyville
Rileyville Cemetery
Nelson Run
Jeremys Run
Moody Creek
NORTH FORK
WESTERN LEY
AND

SCALE 1:24000

1 0 1 MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0 1 KILOMETERS

NORTH

PAGE COUNTY, VIRGINIA NO. 1

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1972 and 1977 aerial photography.

North American Datum of 1927 (NAD27). Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 WOODSTOCK
2 TOMS BROOK
3 STRASBURG
4 EDINBURG
5 BENTONVILLE
6 HAMBURG
7 LURAY
8 THORNTON GAP

INDEX TO ADJOINING 7.5 MAPS

RILEYVILLE, VIRGINIA

7.5 MINUTE SERIES
SHEET NUMBER 1 OF 12

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

PAGE COUNTY, VIRGINIA
BENTONVILLE QUADRANGLE
SHEET NUMBER 2 OF 12

78°22'30" 728000m E 730 731 78°20'00" 732 733 734 78°17'30" 736 737 738 78°15'00"
38°52'30" 4306 4305 4304 4303 4302 38°50'00" 4301 4300 4299 4298 38°47'30" 4296 4295 4294 4293 4293000mN 38°45'00"

WARREN COUNTY
RAPPAHANNOCK COUNTY
SHENANDOAH NATIONAL PARK
BLUE RIDGE MOUNTAIN
SOUTH FORK SHENANDOAH RIVER
Burners Bottom
Burners Ford
Indian Grave Ridge
Compton
Broadus Mountain
Mountain View Church
Overall Run
East Fork Hesketl Hollow
Dry Run
Mine Run
Nelson Run
Beecher Ridge
Keyser Hollow
Compton Hollow
Jeremys Run
Skyline Drive

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North American Datum of 1927 (NAD27). Clarke 1866 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

SCALE 1:24000

1 0 1 MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0 1 KILOMETERS

PAGE COUNTY, VIRGINIA NO. 2

QUADRANGLE LOCATION

1	2	3	1 TOMS BROOK 2 STRASBURG 3 FRONT ROYAL
4		5	4 RILEYVILLE 5 CHESTER GAP
6	7	8	6 LURAY 7 THORNTON GAP 8 WASHINGTON

INDEX TO ADJOINING 7.5 MAPS

BENTONVILLE, VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 2 OF 12

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

PAGE COUNTY, VIRGINIA
HAMBURG QUADRANGLE
SHEET NUMBER 3 OF 12

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NORTH

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

PAGE COUNTY, VIRGINIA NO. 3

QUADRANGLE LOCATION

1	2	3	1 CONICVILLE 2 EDINBURG 3 RILEYVILLE
4		5	4 NEW MARKET 5 LURAY 6 TENTH LEGION
6	7	8	7 STANLEY 8 BIG MEADOWS

INDEX TO ADJOINING 7.5 MAPS

HAMBURG, VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 3 OF 12

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

PAGE COUNTY, VIRGINIA
LURAY QUADRANGLE
SHEET NUMBER 4 OF 12

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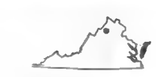
SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

PAGE COUNTY, VIRGINIA NO. 4



QUADRANGLE LOCATION

1	2	3	1 EDINBURG 2 RILEYVILLE 3 BENTONVILLE
4		5	4 HAMBURG 5 THORNTON GAP 6 STANLEY
6	7	8	7 BIG MEADOWS 8 OLD RAG MOUNTAIN

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LURAY, VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 4 OF 12

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

PAGE COUNTY, VIRGINIA
THORNTON GAP QUADRANGLE
SHEET NUMBER 5 OF 12

78°22'30" 730 000m E 731 78°20'00" 732 733 734 735 78°17'30" 736 737 738 739 000m E 78°15'00"

38°45'00" 4292 000m N 460

38°42'30" 4287

38°40'00" 4282

38°37'30" 4279 000m N

Moody Creek
KNOB MOUNTAIN
Jeremys Run
BLUE RIDGE
RAPPAHANNOCK COUNTY
SKYLINE DRIVE
Jeremys Run
Neighbor Mountain
Three Sisters
Britton Hollow
Kemp Hollow
Branch
Rocky
Pumpkin Hill
Shenks
Gravel Hollow
Thornton Gap
Panorama
Pass Ridge
Pine Mountain
Elder Ridge
Jewell Hollow
Morning Star
Leading Ridge
Fork
Dry Shaver
Run Hollow

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NORTH

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

PAGE COUNTY, VIRGINIA NO. 5

QUADRANGLE LOCATION

1	2	3	1 RILEYVILLE 2 BENTONVILLE 3 CHESTER GAP
4		5	4 LURAY 5 WASHINGTON 6 BIG MEADOWS
6	7	8	7 OLD RAG MOUNTAIN 8 WOODVILLE

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THORNTON GAP, VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 5 OF 12

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

PAGE COUNTY, VIRGINIA
TENTH LEGION QUADRANGLE
SHEET NUMBER 6 OF 12

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NORTH

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

PAGE COUNTY, VIRGINIA NO. 6

QUADRANGLE LOCATION

1	2	3	1 TIMBERVILLE 2 NEW MARKET 3 HAMBURG
4		5	4 BROADWAY 5 STANLEY 6 HARRISONBURG
6	7	8	7 ELKTON WEST 8 ELKTON EAST

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TENTH LEGION, VIRGINIA
7.5 MINUTE SERIES
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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

PAGE COUNTY, VIRGINIA
STANLEY QUADRANGLE
SHEET NUMBER 7 OF 12

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NORTH

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

PAGE COUNTY, VIRGINIA NO. 7

QUADRANGLE LOCATION

1	2	3	1 NEW MARKET 2 HAMBURG 3 LURAY
4		5	4 TENTH LEGION 5 BIG MEADOWS
6	7	8	6 ELKTON WEST 7 ELKTON EAST 8 FLETCHER

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STANLEY, VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 7 OF 12

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

PAGE COUNTY, VIRGINIA
BIG MEADOWS QUADRANGLE
SHEET NUMBER 8 OF 12

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NORTH

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

PAGE COUNTY, VIRGINIA NO. 8

QUADRANGLE LOCATION

1	2	3	1 HAMBURG 2 LURAY 3 THORNTON GAP
4		5	4 STANLEY 5 OLD RAG MOUNTAIN 6 ELKTON EAST
6	7	8	7 FLETCHER 8 MADISON

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BIG MEADOWS, VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 8 OF 12

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

PAGE COUNTY, VIRGINIA
OLD RAG MOUNTAIN QUADRANGLE
SHEET NUMBER 9 OF 12

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NORTH

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

PAGE COUNTY, VIRGINIA NO. 9

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 LURAY
2 THORNTON GAP
3 WASHINGTON
4 BIG MEADOWS
5 WOODVILLE
6 FLETCHER
7 MADISON
8 BRIGHTWOOD

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OLD RAG MOUNTAIN, VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 9 OF 12

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

PAGE COUNTY, VIRGINIA
ELKTON WEST QUADRANGLE
SHEET NUMBER 10 OF 12

78° 45′ 00″ — 78° 42′ 30″ — 78° 40′ 00″ — 78° 37′ 30″
38° 30′ 00″ — 38° 27′ 30″ — 38° 25′ 00″ — 38° 22′ 30″
4263000mN — 4262 — 4261 — 4260 — 4259 — 4258 — 4257 — 4256 — 4255 — 4253 — 4252 — 4251 — 4250
698000mE — 699 — 700 — 701 — 702 — 703 — 704 — 705 — 706 — 707000mE

ROCKINGHAM COUNTY
PK SHENANDOAH
Shenandoah
Shutter Island
602

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NORTH

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

PAGE COUNTY, VIRGINIA NO. 10

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 BROADWAY
2 TENTH LEGION
3 STANLEY
4 HARRISONBURG
5 ELKTON EAST
6 GROTTOES
7 MCGAHEYSVILLE
8 SWIFT RUN GAP

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ELKTON WEST, VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 10 OF 12

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

PAGE COUNTY, VIRGINIA
ELKTON EAST QUADRANGLE
SHEET NUMBER 11 OF 12

Mt Lebanon Church
Comertown
Independant Church
Shenandoah
Verbena
Oak Grove Church
Koontz Cemetery
Naked Creek Church
Jollett
Green Mountain
Pine Mountain
Wolf Run
Deep Run
Mudhole Run
Naked Creek
Story Run
Fultz Run
Harris Cove
Weaver Hollow
West Hollow
East Branch
Turner Hollow
Crow Hollow
Allen Hollow
Feldy Mountain
GRINDSTONE MOUNTAIN
LONG RIDGE
SHENANDOAH RIVER
ROCKINGHAM COUNTY
PAGE COUNTY

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NORTH

SCALE 1:24000

MILES 1 0 1

FEET 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS 1 0 1

PAGE COUNTY, VIRGINIA NO. 11

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 TENTH LEGION
2 STANLEY
3 BIG MEADOWS
4 ELKTON WEST
5 FLETCHER
6 MCGAHEYSVILLE
7 SWIFT RUN GAP
8 STANARDSVILLE

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ELKTON EAST, VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 11 OF 12

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

PAGE COUNTY, VIRGINIA
FLETCHER QUADRANGLE
SHEET NUMBER 12 OF 12

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NORTH

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

PAGE COUNTY, VIRGINIA NO. 12

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 STANLEY
2 BIG MEADOWS
3 OLD RAG MOUNTAIN
4 ELKTON EAST
5 MADISON
6 SWIFT RUN GAP
7 STANARDSVILLE
8 ROCHELLE

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FLETCHER, VIRGINIA
7.5 MINUTE SERIES
SHEET NUMBER 12 OF 12

SOIL LEGEND

Map symbols consist of numbers or a combination of numbers and letters. The number represents the kind of soil.
A capital letter following the number indicates the slope class.

SYMBOL	NAME
1C	Berks-Weikert complex, 7 to 15 percent slopes
2A	Biltmore fine sandy loam, 0 to 4 percent slopes, occasionally flooded
3B	Braddock loam, 2 to 7 percent slopes
3C	Braddock loam, 7 to 15 percent slopes
3D	Braddock loam, 15 to 25 percent slopes
4B	Braddock cobbly loam, 2 to 7 percent slopes
4C	Braddock cobbly loam, 7 to 15 percent slopes
4D	Braddock cobbly loam, 15 to 25 percent slopes
5C	Braddock-Urban land complex, 2 to 15 percent slopes
6C	Carbo-Rock outcrop complex, 2 to 15 percent slopes
6E	Carbo-Rock outcrop complex, 15 to 35 percent slopes
7C	Catoctin silt loam 7 to 15 percent slopes
7D	Catoctin silt loam 15 to 35 percent slopes
8F	Catoctin-Rock outcrop complex, 55 to 70 percent slopes, extremely stony
9C	Chilhowie silty clay loam, 7 to 15 percent slopes
9D	Chilhowie silty clay loam, 15 to 25 percent slopes
10A	Combs fine sandy loam, 0 to 3 percent slopes, occasionally flooded
11B	Cotaco loam, 2 to 7 percent slopes
12A	Craigsville cobbly sandy loam, 0 to 4 percent slopes, frequently flooded
13C	Dekalb channery sandy loam, 2 to 15 percent slopes, very stony
13D	Dekalb channery sandy loam, 15 to 35 percent slopes, very stony
13E	Dekalb channery sandy loam, 35 to 55 percent slopes, very stony
14E	Dekalb channery sandy loam, 35 to 55 percent slopes, extremely stony
14F	Dekalb channery sandy loam, 55 to 70 percent slopes, extremely stony
15F	Dekalb-Edgemont-Rock outcrop complex, 15 to 70 percent slopes, extremely stony
16B	Dyke loam, 2 to 7 percent slopes
16C	Dyke loam, 7 to 15 percent slopes
17C	Edgemont-Dekalb complex, 2 to 15 percent slopes, very stony
17D	Edgemont-Dekalb complex, 15 to 35 percent slopes, very stony
17E	Edgemont-Dekalb complex, 35 to 55 percent slopes, very stony
18C	Edneytown loam, 2 to 15 percent slopes
18D	Edneytown loam, 15 to 35 percent slopes
18E	Edneytown loam, 35 to 55 percent slopes
19C	Edom silty clay loam, 7 to 15 percent slopes
19D	Edom silty clay loam, 15 to 25 percent slopes
20B	Fauquier silt loam, 2 to 7 percent slopes
20C	Fauquier silt loam, 7 to 15 percent slopes
20D	Fauquier silt loam, 15 to 25 percent slopes
20E	Fauquier silt loam, 25 to 35 percent slopes
21C	Fauquier silt loam, 7 to 15 percent slopes, very stony
21D	Fauquier silt loam, 15 to 35 percent slopes, very stony
22C	Gilpin silt loam, 2 to 15 percent slopes
23D	Gilpin silt loam, 15 to 35 percent slopes, very stony
23E	Gilpin silt loam, 35 to 55 percent slopes, very stony
24A	Huntington loam, 0 to 3 percent slopes, occasionally flooded
25C	Jefferson fine sandy loam, 2 to 15 percent slopes
25D	Jefferson fine sandy loam, 15 to 35 percent slopes
25E	Jefferson fine sandy loam, 35 to 55 percent slopes
26E	Jefferson fine sandy loam, 35 to 55 percent slopes, very stony
27C	Laidig channery loam, 2 to 15 percent slopes
28C	Laidig channery loam, 2 to 15 percent slopes, very stony
28D	Laidig channery loam, 15 to 35 percent slopes, very stony
28E	Laidig channery loam, 35 to 55 percent slopes, very stony
29B	Lodi silt loam, 2 to 7 percent slopes
29C	Lodi silt loam, 7 to 15 percent slopes
29D	Lodi silt loam, 15 to 25 percent slopes
29E	Lodi silt loam, 25 to 35 percent slopes
30C	Massanutten channery loam, 2 to 15 percent slopes
31C	Massanutten channery loam, 2 to 15 percent slopes, very stony
31D	Massanutten channery loam, 15 to 35 percent slopes, very stony
31E	Massanutten channery loam, 35 to 55 percent slopes, very stony
32A	Maurertown silt loam, 0 to 2 percent slopes
33B	Monongahela loam, 2 to 7 percent slopes
33C	Monongahela loam, 7 to 15 percent slopes
34C	Myersville-Catoctin complex, 2 to 15 percent slopes, very stony
34D	Myersville-Catoctin complex, 15 to 35 percent slopes, very stony
34E	Myersville-Catoctin complex, 35 to 55 percent slopes, very stony
35D	Myersville-Catoctin complex, 15 to 35 percent slopes, extremely stony
35E	Myersville-Catoctin complex, 35 to 55 percent slopes, extremely stony
36B	Oaklet silt loam, 2 to 7 percent slopes
36C	Oaklet silt loam, 7 to 15 percent slopes
37C	Oaklet-Carbo complex, 2 to 15 percent slopes, very rocky
37E	Oaklet-Carbo complex, 15 to 35 percent slopes, very rocky
38D	Peaks-Edneytown complex, 15 to 35 percent slopes, extremely stony
38E	Peaks-Edneytown complex, 35 to 55 percent slopes, extremely stony
38F	Peaks-Edneytown complex, 55 to 70 percent slopes, extremely stony
39F	Peaks-Rock outcrop complex, 55 to 70 percent slopes, extremely stony
40	Pits, quarry
41A	Purdy silt loam, 0 to 3 percent slopes
42F	Rock Outcrop-Drall-Dekalb complex, 15 to 70 percent slopes
43B	Sherando cobbly fine sandy loam, 2 to 7 percent slopes
43C	Sherando cobbly fine sandy loam, 7 to 15 percent slopes
44A	Sindion loam, 0 to 3 percent slopes, occasionally flooded
45D	Sylvatus-Sylco complex, 15 to 35 percent slopes
45E	Sylvatus-Sylco complex, 35 to 55 percent slopes
46B	Thurmont fine sandy loam, 2 to 7 percent slopes
46C	Thurmont fine sandy loam, 7 to 15 percent slopes
46D	Thurmont fine sandy loam, 15 to 25 percent slopes
47B	Timberville silt loam, 2 to 7 percent slopes, rarely flooded
48A	Tygart silt loam, 0 to 3 percent slopes
49B	Unison fine sandy loam, 2 to 7 percent slopes
49C	Unison fine sandy loam, 7 to 15 percent slopes
49D	Unison fine sandy loam, 15 to 25 percent slopes
50D	Weikert-Berks complex, 15 to 35 percent slopes
50E	Weikert-Berks complex, 35 to 55 percent slopes
51F	Weikert channery silt loam, 55 to 70 percent slopes
52B	Wheeling fine sandy loam, 2 to 7 percent slopes
53D	Zepp channery sandy loam, 15 to 35 percent slopes, very stony
53E	Zepp channery sandy loam, 35 to 55 percent slopes, very stony
54E	Zepp channery sandy loam, 35 to 55 percent slopes, extremely stony
55A	Zoar silt loam, 0 to 3 percent slopes

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- County
- Reservation (national forest or park, state forest or park, and large airport) (label only)
- Field sheet matchline and neatline

AD HOC BOUNDARY (label only)
(label)
Small airport, airfield, park, oilfield, cemetery, or flood pool

ROAD EMBLEM & DESIGNATIONS

- Federal
- State
- County, farm or ranch

RAILROAD (label only)

DAMS

- Large (to scale)
- Medium or Small (Named where applicable)

PITS

- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

- Church (label only)
- School (label only)

WATER FEATURES

DRAINAGE

- Perennial, double line (label only)
- Perennial, single line (label only)
- Intermittent (label only)
- Drainage end (label only)

LAKES, PONDS AND RESERVOIRS

- Perennial
- Intermittent

MISCELLANEOUS WATER FEATURES

- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

- SOIL DELINEATIONS AND SYMBOLS
- ESCARPMENTS
  - Bedrock (points down slope)
- DEPRESSION OR SINK
- MISCELLANEOUS
  - Rock outcrop (includes sandstone and shale)
  - Multiple sinks